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2024 WAREHOUSEMAN BEST PRACTICES

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RECOMMENDATIONS and REQUIREMENTS

- **ONLY CLASS A BALES SHOULD BE SHIPPED.** Baled Cotton Lint USA Domestic (Joint Cotton Industry Bale Packaging Committee (JCIBPC)) (see attached form).
- All facilities should conduct self-inspections (see attached form).
- Underlining the importance of fire safety, it is **MANDATORY** that all sprinkler systems undergo annual inspections. These inspections, conducted according to NFPA 25 standards and under the guidance of a qualified sprinkler inspection contractor, are essential to ensure the system's functionality. Any necessary repairs must be promptly completed.
- Work with the 2024 NCGA Fire Bale Management Practices (see attached form).
- Fire Protocols should be in place and practiced by all personnel so that everyone knows how to combat a Bale cotton fire best (see attached form)
- All Sprinkler System Impairments **MUST** be reported to the Insurance Underwriter with the following information: Warehouse #, System # Impaired, Number of Bales in the affected area, and Estimated time for repairs to be completed.
- Once a sprinkler system has been in place for over 20 years, plans should be made to replace/update the entire system systematically.
- Recommended AROSA SYSTEM (see Attached Information): Given the new automated Bale Strapping Systems, the AROSA SYSTEM provides an early warning system before a bale cotton fire.
- It is highly recommended to use a nitrogen compressor instead of an air compressor as it significantly extends the life cycle of the sprinkler system to 40 years. Nitrogen systems effectively prevent pipe oxidation, ensuring the longevity and reliability of your system. Typically, a sprinkler system that uses compressed air has a life span of 15 to 20 years. There is lots of new technology to control Corrosion Management Sprinkler Systems.
- Foam systems are essential for ensuring safety in receiving houses.

WAREHOUSEMAN'S RESPONSIBILITIES FOR FIRE CONTROL AND PREVENTION

As warehousemen, you play a crucial role in fire control and prevention. Your vigilance and actions are integral to maintaining a safe warehouse environment.

1. **Fire Hazard Awareness:** Warehousemen are responsible for remaining vigilant and actively identifying potential fire hazards within the warehouse premises. This includes promptly identifying conditions or materials that may increase the fire risk.
2. **Firefighting Equipment Inspection:** Regularly inspect and assess the firefighting equipment to ensure it is in proper working condition. This regular inspection ensures that we are always prepared to combat any fire emergencies, providing a sense of security for all personnel.
3. **Maintenance of Warehouse Facilities:** Monitor and report any deterioration or damage to the warehouse facilities or drainage system that may pose a risk to fire safety. Prompt repairs should be conducted to maintain a safe environment.
4. **Enhanced Security Precautions:** Ensure all security precautions are in place to safeguard the facility. This involves securing the warehouse, closing, and securing all walk-through and loadout doors, and implementing adequate security measures to prevent unauthorized access.
5. **Compliance with Fire Protocols:** Ensure all fire protocols and other risk mitigation measures are up to date and practiced by all personnel. This includes regular training sessions and drills to familiarize everyone with emergency procedures.

FIRE CONTROL AND PREVENTION - SPECIFIC RESPONSIBILITIES

A) Lighting:

- Only approved electric lighting (LED or Incandescent) should be used within the warehouse.
- In case of special lighting needs, use electric battery emerging lighting and flashlights.

B) Electric Equipment:

- Flexible light cords, key sockets, exposed switches, exposed fuse blocks or electrical panels, or any devices with exposed connections are prohibited in cotton storage areas.
- Maintain a minimum clearance of three feet between all cotton and lamps, switches, and other electrical equipment.
- Install switches and similar equipment outside the storage area or in the pumphouse areas when feasible.
- Ensure all electric wiring is correctly installed in conduit to prevent contact with cotton or equipment.

FIRE CONTROL AND PREVENTION - SPECIFIC RESPONSIBILITIES-Cont.

C) Heating:

- Prohibit stoves, open grates, and fires in enclosed offices and areas storing or handling samples of Bale Cotton.
- Gas heating devices in warehouse storage buildings should have rigid connections and comply with safety standards.
- If the sprinkler system is a wet system and has gas heaters in the ceiling area. **A clear space radius of 50 to 100 feet from gas heaters must be maintained.**
- Prohibit gasoline and portable kerosene stoves in and around bale cotton storage buildings.

D) Forklifts, Trucks, Tractors:

- Only allow approved mobile equipment with the Underwriters Laboratories label in cotton storage areas. (Electric (ES), Gasoline (GS), Diesel (OS), Liquefied Petroleum (LPS), Dual Fuel – Gasoline/LPG (GS/LPS), Dual Fuel – Gasoline/CNG (GS/CNS))
- Refuel equipment and vehicles outside the warehouse premises.
- Perform all repairs and maintenance outside the warehouse.
- Restrict ordinary commercial trucks from entering any cotton storage area.
- Designate a loading platform for commercial trucks outside the enclosed walls of the warehouse, ensuring it is inclined away from the platform and securely enclosed.

E) Suspect/Actual Fire Cotton Bale Direct from Ginner:

- Store freshly ginned cotton separately from other stock for at least 48 hours and closely monitor it during this period.
- Designate a specific location, section, or compartment for suspect or actual fire cotton bales.
- Remove fire-packed gin bales promptly and maintain a safe distance from other storage areas.
- Follow the guidelines provided by ginner regarding warning marks on bales and notification from ginner that the shipments contain possible fire bales.

F) Warehouse Conditions:

- Maintain proper supervision of the property to prevent fire losses.
- Ensure cleanliness, including regular housekeeping, throughout the entire premises.
- Promptly repair damaged floors, windowpanes, skylights, or building structures.
- Clean floors and yards periodically, especially when managing cotton or receiving time.
- See **“Fire Protection Equipment Self-Inspection Report”**

FIRE CONTROL AND PREVENTION - SPECIFIC RESPONSIBILITIES-Cont.

G) Loose Cotton:

- Keep loose cotton and samples in closed bins or a detached building.
- If damaged cotton is handpicked or reconditioned on the premises, confine it to one section or compartment dedicated to this purpose.
- Immediately sack all pickings and take them to a loose house or remove them from the premises.
- Prohibit drying damaged pickings in the same fire area as stored cotton.

H) Smoking:

- Strictly prohibit smoking on the premises where cotton is stored, managed, or sampled.
- Clearly post "No Smoking" signs and enforce the prohibition rigorously.

I) Grass and Weeds:

- Remove all grass and weeds to maintain a minimum clearance of fifty (50) feet from buildings and one hundred (100) feet from open cotton storage areas.

J) Open Fires:

- Prohibit any fires within one hundred (100) feet of any building or open cotton storage area. NO OPEN FLAMES – Follow HOTWORKS PROTOCOLS

K) Waste Cans:

- Provide approved self-closing waste cans near machinery and keep all oily waste in these cans until removed from storage areas.
- Do not use combustible trash bins for ashes or rubbish near buildings. Use suitable metal containers and remove waste from the premises daily.

FIRE PROTECTION EQUIPMENT

- Regularly maintain and keep all firefighting equipment in a state of readiness for immediate use.
- Ensure that cotton, operating equipment, and miscellaneous storage do not obstruct the sprinkler system or access to firefighting equipment and watch stations.
- Adhere to the standards outlined by NFPA 13 for installing and maintaining sprinkler systems.
- Perform annual trip tests and prominently display green tags or maintain records to demonstrate compliance. Keep a written record of all sprinkler inspections and repairs made to each sprinkler, noting the system # and Warehouse#.
- Identify hydraulic sprinkler system nameplates with weatherproof signs at designated locations, as required by NFPA 13. Keep a Picture copy of all nameplates.

A) Fire Doors:

- When a firewall is constructed with openings, a four (4) hour-rated fire door must be placed on each side of the opening. Each opening will require two (2) fire doors with heat-actuating devices for automatic closing.
- Maintain all automatic operating fire doors in good operational condition to ensure prompt closure during a fire.
- Fire doors should be clear of any obstructions and have impact protection barriers installed for protection.
- Conduct annual testing of rate-of-rise heat-actuated devices by a safe method.

B) Automatic Sprinkler System:

- Periodically check the sprinkler system to ensure proper operating condition.
- Arrange for qualified personnel to conduct an annual trip test, required maintenance, and churn test on fire pumps annually per NFPA 25 standards.
- **Notify the insurance underwriter if the sprinkler system becomes impaired, inoperative, or under repair and take necessary precautions to protect the cotton during downtime.**
- Ensure familiarity with the facility's sprinkler system type and operation.
- There should be an 18-to-36-inch space between bale cotton and sprinkler heads.
- Make sure all local alarms on sprinkler systems and monitored alarms are working.
- Make sure alarms on any pumps are in good working order.

FIRE PROTECTION EQUIPMENT-Cont.

C) Fire Extinguishers:

- Install Class A Dry Chemical extinguishers with sodium bicarbonate or potassium bicarbonate base powders. Dry Chemical extinguishers using sodium bicarbonate or potassium bicarbonate base powders are recommended. Dry Chemical extinguishers are available in various capacities: twenty (20) lbs. {9 kg} extinguisher is recommended.
- Place extinguishers of appropriate sizes and quantities per guidelines, ensuring easy access near walk-through and roll-up/loading doors.
- Equip motorized vehicles and stacking machines with suitable extinguishers. A minimum of five (5) lb. (2.3 kg) dry chemical extinguisher rated for ignitable liquids and gases is required.
- Use non-freezing extinguishers or protect against freezing when necessary.
- Keep all extinguishers charged and inspected annually and a tag indicating the inspection date. Remove any non-compliant extinguishers from the premises.

D) Standpipes:

- Keep the hose attached to standpipes and in good condition. Provide racks for hose storage.
- Maintain the hose nozzles in good repair.
- Ensure valves operate smoothly and a water supply is always available at the standpipes.

E) Outside Hydrants:

- Verify the correct operation of all outside hydrants.
- Keep hydrant hoses and nozzles in good condition.
- Regularly inspect, oil, and flush the hydrants every two years.
- Inform the local fire department about the location of all outside hydrants and provide an overview of the warehouse layout and pressure-booster connections.

WATCHMEN SERVICE

A) Duties and Responsibilities:

- Ensure that watchmen understand their duties and responsibilities.
- Provide comprehensive training to familiarize them with the warehouse and firefighting equipment.
- Educate watchmen about the causes of fires, emergency protocols, and the locations of fire alarms.

B) Accessibility of Communication:

- Ensure that the watchman's telephone or mobile phone and supervisory staff are accessible at their designated location. Share contact information for emergencies.

BUILDING RECOMMENDATIONS FOR BALED COTTON WAREHOUSES

A) Warehouse Construction:

- Concrete Floor
- Steel Framing with Metal Siding and Metal Roofing
- Steel / Metal Support Post

B) Warehouse Size:

- **Limit of Liability:** The limit varies for each fire division or fire break, with consideration given to anticipating the highest market value of one bale, including the accumulated accrued charges.
- **Sprinkler System requirements:** A six-inch valve is required for every 25,000 square feet. A 50,000-square-foot building would require two (2) six-inch valves since it would hold more than 15,000 bales. NFPA 13 is the standard for baled cotton storage and sprinkler standards.
- **Wall Height:** Baled Cotton cannot be stored higher than 15' and must be at least 18" from any sprinkler head. We recommend a wall eave height of 18' and no higher than 24'.

C) Warehouse Spacing:

- 100' clear space between each fire division or fire break and any other exposing building, including Module Yards, Trash Piles, and Burr Piles
- Instead of the one hundred (100)' clear space, a 4-hour-rated wall may be constructed. These walls must be built with approved fire-rated material. A 6" solid concrete wall, 8" concrete blocks, or 8" solid brick wall is recommended. These materials must meet the UL standards for 4-hour-rated material.
- When a firewall is constructed with openings, a 3-hour-rated fire door must be placed on each side of the opening. Each opening will require two (2) fire doors with heat-actuating devices for automatic closing.

D) Recommended Warehouse Building:

- 150' x 275' x 18' will store around 14,800 bales.
- 200' x 225' x 18' will store around 16,000 bales.

E) Recommended Storage Pattern:

- One 15' central aisle.
- 6' cross aisle between each double row of baled cotton placed on its side.
- Not more than eight (8) bales high (Cordwood method).

MINIMUM FIRE PROTECTION SPRINKLER SYSTEM REQUIREMENTS

The requirements listed below are acceptable, but local codes may be more stringent, so local codes must be followed. The following is based on **NFPA 13**.

A) Water Supply for Sprinkler Protection:

- **Gravity tank:** 100,000 gallon {378,530 liters} elevated tank plus capability for refilling in 4 hours; or
- **Ground level tank:** 200,000 gallons {757, 060 liters} tank; capable of being refilled in 8 hours by an automatic fire pump with 1,500 *GPM* {5,678 dm³/min} at 100 psi {690 kPa}, with electric or diesel drive motor; or
- **Reservoir:** In-ground with automatic fire pump as above. Earth-walled Pond, a minimum of 1,300,000 gallons {4,920,900 liters}. Concrete walled pond, at least 200,000 gallons {57,060 liters}. Ponds require a concrete pit with double removable intake screens and a vertical shaft turbine-type pump.
- **Ground Well Water Supply:** Capable of supplying water for 120 minutes with a review of earthquake zones and underground water tables.

B) Sprinkler Protection - Extra Hazard Modified:

- Two (2) 6" valves in each building – up to 50,000 square feet {4,650 m²}. One 6" {.24 mm} valve for each 25,000 square feet {2,325 m²}.
- Water flow alarm bell.
- Insulated and lighted valve houses as enclosures for protection against freezing.
- Head Spacing: Not greater than 90 feet {27 m} head spacing.
- Dry-pipe systems must be calculated to provide a sprinkler density of .25 / 3,900 square feet {.12 / 363 (LIs)/m²}.

C) Fire Protections:

- **Standpipes:** As per code – 1½" {.06 mm} hose connection with 100 feet {30.5 m} hose with spray nozzle.
- **Hydrants:** Located preferably 50 feet from the building and capable of reaching any exterior part of the building with no more than 250 feet {76 m} of hose.
- **Alarm:** Electronic water flow and low air pressure alarm to an Alarm Service where personnel are on duty 24 hours a day for notification to the Fire Department, Police, or Sheriff's Department. When an Alarm Service is not provided, a watchman is required when premises are not open for business.

D) Extinguishers:

- Dry Chemical extinguishers using sodium bicarbonate or potassium bicarbonate base powders are recommended. Dry Chemical extinguishers are available in various capacities; a Twenty (20) lbs {9 kg} extinguisher is recommended.

MINIMUM FIRE PROTECTION SPRINKLER SYSTEM REQUIREMENTS-Cont.

E) Building Spacing:

- 100 feet {30.5 m} clear space separation from other buildings or constructed with 4-hour Fire Walls and Fire Doors:

F) Fire Walls and Fire Doors:

- **Fire Walls:** Constructed of Brick / Blocks or material with a 4-hour fire rating.
- **Fire Doors:** There should be two doors per opening on each side of the Fire Wall. Each door must have a fire rating of 3 hours with heat-actuated devices for automatic closing.

G) Hydraulically Sprinkler Systems Nameplates

Signs must have the following minimum information according to NFPA 13

- The location of the design area(s). These are also known as the “hydraulic remote areas” and make up the portion of the building and contents that are most challenging for the sprinkler system to protect. It is important to remember that the hydraulic remote area may not be the area physically most remote from the sprinkler risers.
- The discharge densities over the design area or areas. This is the amount of water the design criteria specify is needed to control a fire in the hydraulic remote area. This value may come from NFPA 13 or the authority having jurisdiction.
- Size (area) of, or number of sprinklers in, the design area.
- The required flow and residual pressure demand at the base of the riser or the fire pump, where applicable.
- Occupancy classification or commodity classification and maximum permitted storage height and configuration.
- Hose stream allowance included in addition to the sprinkler demand.
- The name of the installing contractor.

Hydraulically Calculated System

This system as shown on _____
company print no _____ dated _____
for _____
at _____ contract no _____
is designed to discharge at a rate of _____ gpm
(L/min) per sq ft (m2) of floor area over a maximum area of _____ sq ft (m2) when supplied
with water at the rate of _____ gpm (L/min)
at _____ psi (bars) at the base of the riser
Hose stream allowance of _____ gpm(L/min)
is included in the above.
Occupancy classification _____
Commodity classification _____
Maximum storage height _____
Installed by _____

If these are installed and in place, please take a picture, note the Warehouse # and Riser # should they come off, and have your system's specifications on file with maintenance records.

LIFT TRUCKS MOTORIZED EQUIPMENT NFPA 505

- A) Only approved lift trucks should be used for baled cotton handling. All four types listed below may be used provided they have the proper safeguards to qualify them for use in a Class III, Division Two storage facility. The "S" designation would be shown on the Identification Label after the fuel designation (see below).
- Electric (ES)
 - Gasoline (GS)
 - Diesel (OS)
 - Liquefied Petroleum (LPS)
 - Dual Fuel – Gasoline/LPG (GS/LPS)
 - Dual Fuel – Gasoline/CNG (GS/CNS)
- B) Provide fire extinguishers suitable for a fire involving the fuel used in the lift truck as follows:
- Equip each gasoline, LPG, diesel, gasoline/LPG, battery-powered, CNG, and hydrogen-fueled lift truck with a minimum five (5) lb. (2.3 kg) dry chemical extinguisher rated for ignitable liquids and gases.
 - Provide a minimum of ten (10) lbs. (4.5 kg) dry-chemical extinguishers rated for ignitable liquids and gases at each gasoline or diesel refueling location.

BALED COTTON WAREHOUSE FIRE PROTOCOLS PROCEDURES

- 1) Get assistance from the local fire department.
- 2) To contain the fire:
 - a. **REMOVE BALES OUTSIDE THAT ARE INVOLVED IN FIRE.**
 - b. **MOVE ADJOINING BALES TO A SAFE WATCH AREA.**
 - c. **AFTER MOVING BALES OUT OF THE BUILDING, SEPARATE THEM INDIVIDUALLY.**
 - d. **DO NOT STACK FIREBALES TOGETHER!**
 - e. **DO NOT PUSH UP IN PILES!**
 - f. **DO NOT CUT SRAPS!**
- 3) You can pile busted bales for later removal. You will not be able to extinguish the fire in this pile. It must be buried; by moving it, it will be reduced. This pile will flame up from time to time. It would be best if you always had someone with a water hose with it.
- 4) The priority is to work on bales with straps/bans still on them.
- 5) Set the bales out like chessmen, standing on end, spread two feet apart so you can walk between each bale and inspect it for fire.
- 6) Get as many men and hoses as possible.
- 7) Watch for bales with busted straps/bans. They will flame up first and be the hardest to put out.
- 8) Work as though on an assembly line to save one bale at a time.
- 9) Work on the best-looking bales first, as they will be extinguished quickly.
- 10) Do not allow bales to touch each other if they have been in the fire. Keep them at least two feet apart.
- 11) Do not allow the bales you are trying to save to be on their side. Stand them on end if possible. You want the least bale surface area touching anything else, even the ground. Where you allow the bale to touch is where the fire can hide from you.
- 12) Inspect each bale individually for hot spots.
- 13) Spray the bale down with water, then inject the hose as deep as possible at maximum pressure. Physically push it into the bale at the point where the fire is located.
- 14) If the hose's high pressure causes the fiber to loosen up and hang off the bale as you extinguish the hot spot, hand-pull this loose fiber off. The loose fiber on the ground should be thoroughly soaked with your hose at high pressure. These loose fibers are the second place the fire will hide from you and reappear at the wrong time.
- 15) Keep hot bales from flaming as you work with others. If one embers or blazes, immediately spray it down, then return to systematically working your bales in order.
- 16) As some firemen do, do not just stick your hose in the air to spray once the flame is under control. This floods the area, causes more water damage, and wastes water. It is not practical.
- 17) After you think you have the fire under control, you should have four areas:
 - a. pushed-up pile of loose, still smoking, highly guarded, pushed away from everything else.
 - b. All the bales with busted ties/straps/bans in the next-most dangerous area (fire is still hiding in these bales).
 - c. c. All the bales with the most ties/straps/bans are still intact (these bales are your top priority; you can put the fire entirely out in them).
 - d. The unburned adjoining bales. Store the last bales on a dock or under a roof entirely away from the fire and occasionally observe them for odor and smoke.
- 18) Call us, and we will send a qualified Salvage Professional!

BEST PRACTICES FOR PROCESSING SUSPECT FIRE BALES AT COTTON GINS AND COTTON WAREHOUSES, NCGA

There is a necessity for a fire prevention policy between cotton gins and cotton warehouses to minimize the risk of fire hazards in the storing and shipping of lint. These practices should be used when detecting and managing suspect fire bales: where a visible flame was present in the gin, a detection device alerted a risk and was verified by gin staff, an odor of fire was present, or any other flame risk where ignition could be possible is found. These practices are recommended by the Council as a minimum standard when working with insurance companies.

Gin practices for processing suspect fire bales:

- Gin should isolate suspect fire bales from other bales by placing the suspect fire bales in a monitoring location as selected by gin management.
- Gin should isolate a minimum of **two additional** bales before and after the suspect fire bale for a total of **five bales**, including the suspect fire bale, or more bales as determined by gin management.
- Gin should notify warehouse management of any prior cotton loads delivered or in transit associated with the suspect fire bales as determined by gin management.
- Gin should retain suspect fire bales and additional bales for a minimum of **five** days from the date of suspected detection at the gin premise or longer as determined by gin management.

Gin practices for the delivery of suspect fire bales after the monitoring period:

- Gin should clearly mark the bales as suspect fire bales with approved marking materials as provided by the warehouse. Suspected fire bales should be clearly marked with adhesive tags or tape on both sides of each bale. No markings may be added to the exterior of the bale that cannot be removed without risk of damage to the bagging material.
- Gin should identify suspect bales on the appropriate reporting to the warehouse staff.
- Gin agrees that delivery of suspect fire bales is limited to daytime shifts of warehouse operation hours.
- Gin staff should load suspect fire bales to the back of the truck when shipping to aid warehouse staff in identifying suspected fire bales in a mixed load.

Warehouse practices for processing suspect fire bales:

- Warehouse staff should isolate the suspect fire bales on arrival at a designated area.
- Warehouse staff should receive, record the location, and issue warehouse receipts at the warehouse's discretion for the suspected fire bales.
- Warehouse staff should conduct **daily** monitoring of the suspect fire bales and return the bales to inventory after a monitoring period is completed as determined by warehouse management.
- Warehouse staff should remove markings or adhesive tags designating suspect fire bales after the monitoring period is complete.

Gin and Warehouse should each agree to practice and implement these procedures for suspect fire bales and notify each other of any alterations or deviations to agreed-upon practices regarding suspect fire bales before implementing any new practices.

MANAGING FIRE PROTECTION SYSTEM IMPAIRMENT

Can your company bear a staggering US\$3.2 million loss in assets? Neglecting to restore an impaired sprinkler or other fire protection system at your facility could lead to such a financial catastrophe—or worse. Imagine a scenario where a fire breaks out while the system is impaired, rapidly growing undetected and spreading beyond the control capabilities of the protection system. This is not a hypothetical situation. Loss Example 1: A sprinkler system was shut down after a small fire at a manufacturing facility, which was thought to have been extinguished by sprinklers and hose streams applied by company employees. The sprinkler system was not restored promptly, and the local fire service was not notified of the fire. The fire rekindled and spread beyond the capabilities of the sprinkler system even though employees reopened the sprinkler system's shut valve as soon as the fire was discovered. The resulting damage was estimated at more than US\$84 million gross.

From 1986 to 2005, shut sprinkler valves were a factor in 229 fire losses insured by FM Global, causing more than US\$739 million* gross in damage—an average of more than US\$3.2 million per incident. All the events that resulted in a considerable loss to our client's assets could have been prevented with a strong impairment management program, the Red Tag Permit System. Further investigation of these events revealed that sprinkler control valves had been closed for the following reasons:

- Sprinkler system installation
- Sprinkler system repair
- Building alteration
- Maintenance
- Lack of heat in the protected area

However, you create a fire hazard whenever you take your fire protection equipment out of service, even for a minute. Sure, making repairs, installing new equipment, or completing building alterations are among valid reasons for impairing protection. However, the fact remains that if a fire ignites in an area where the fire protection system has been impaired, the fire can spread unabated. As a result, it is essential to take quick and efficient steps to minimize the duration of the impairment and implement temporary measures to help prevent a loss from occurring while protection is out of service. Fortunately, there are several steps you can take to ensure your facility's fire protection system is ready when you need it, and the following Red Tag Permit System is top on the list. Designed to help you manage impairments and restore complete fire protection, this program comprises four key elements:

- 1) Red Tag Permit
- 2) Fire Protection Equipment Decals
- 3) Reusable Impairment Tag for Fire Service Connections
- 4) Red Tag Permit System Wall Hanger

The following guidelines require the use of a Red Tag Permit System Wall Hanger, which includes:

- One copy of this brochure
- One Fire Protection Equipment Decals sheet is to be affixed to fire protection equipment as a reminder that authorization is needed before any shutdown can occur.
- One 12.5 x 13.25-in. (31.75 x 33.66-cm) wall hanger with pockets to keep other system elements organized and within reach; also lists steps to take before, during, and after an impairment.
- Four Red Tag Permits (F2480) to authorize impairments and document tasks as they are performed.
- One Reusable Impairment Tag for Fire Service Connections (P7427t) should be wired to fire service connections as a reminder that fire protection is out of service.

MANAGING FIRE PROTECTION SYSTEM IMPAIRMENT-Cont.

Be sure to familiarize personnel with this system as soon as possible before planning your following fire protection system impairment. Display the wall hanger where it is visible and alert personnel to its location. Educate staff about all procedures and let them know who is assigned to authorize an impairment.

Before a Planned Impairment

- Complete all applicable sections of the permit (see page 5), providing critical information, such as telephone numbers for your local fire service, alarm company, water department, and Insurer.
- Office servicing your property.
- Affix the red-and-white Fire Protection Equipment Decals to all protection equipment to remind.
- Personnel that authorization is needed before any shutdown can occur.
- Plan to work on fire protection when the facility is not operating. Shut down any hazardous processes.
- Prohibit any process with an inherent ignition source, such as hot work. Smoking also should be prohibited.
- Be prepared. Have everything ready before impairing protection, e.g., excavating equipment, pipe plugs, repair parts, and personnel.
- Plan to have temporary fire protection on hand: extra extinguishers, charged hose lines, temporary sprinkler protection, etc.
- Set up temporary sprinkler protection, especially for prolonged impairments, by running a 2.5-in. (65-mm) hose from the hydrant to the 2-in. (50-mm) drain of an active system (you will need an adapter to connect the hose to the drain).
- Notify your emergency response team (ERT) and the public fire service so they can be ready to manage any emergency.
- If fire protection equipment can be restored, determine how to quickly return it to service if a fire occurs during the impairment.
- Assign a fire watch to patrol the area where protection is impaired.
- Notify your local Insurer office of the planned impairment.

An engineer and client service representative can advise you on proceeding and follow up until protection has been restored. In addition, they can help minimize downtime, reduce fire exposure to the area, arrange for temporary protection, and determine how to restore protection as quickly as possible in the event of a fire.

AUTHORIZING THE IMPAIRMENT

- Inform employees that the *Red Tag Permit System* is in effect. It is best to display the wall hanger in plain view so that the fire safety supervisor or appropriate personnel can easily follow the procedures listed on the poster and permit.
- Use the three-part *Red Tag Permit* to initiate the impairment and identify affected equipment. Complete the permit, following each step carefully.

RESTORING THE SYSTEM

- Promptly restore fire protection equipment to automatic service immediately.
- If sprinkler protection is impaired, connect a 2-in. (50-mm) drain test at the sprinkler riser to obtain a clear, unobstructed water flow.
- Lock sprinkler control valves in the wide-open position.
- Reset the alarm system; notify the central station, if applicable.
- Notify your ERT, public fire service, and Insurer representative that fire protection has been restored.
- Complete the Red Tag Permit. The fire protection equipment operator documents all steps to restore fire protection in Part 3 of the permit, signs it, and returns it to the fire safety supervisor.

The fire safety supervisor:

- ❖ Reviews the information on the signed permit and retains it as a record of the impairment.
and
- ❖ Transfers information from Part 3 of the permit to Part 2 and phones or emails the information in Part 2 to the Insurer.

MANAGING UNPLANNED IMPAIRMENTS

The steps outlined on the previous pages work well for planned fire protection impairments; however, not all impairments can be planned. Suppose sprinkler piping starts leaking or freezing, causing pipes to break. Suddenly, you are faced with an unplanned impairment, and the steps you take to manage the situation could mean the difference between minor damage and a significant loss. To ensure safe handling of the impairment:

- Stabilize the situation and immediately follow the precautions outlined in “Before a Planned Impairment” on page 4.
- If a fire starts, ensure sprinkler valves are opened immediately.
- If it is safe to do so, immediately dispatch the sprinkler valve operator(s) to the valve(s) controlling the fire area; the valve operator’s job is to:

FIRE PROTECTION IMPAIRMENT MANAGEMENT CHECKLIST

The risk of a significant fire loss is increased when the fire protection systems or equipment are out of service (i.e., impaired). A comprehensive impairment management program should be developed and implemented to minimize the risk associated with fire protection system impairments. This checklist can help verify that the critical elements of an impairment management program have been utilized during an impairment.

System/equipment impaired:

Date of impairment:

Area impacted by the impairment:

HAZARDOUS OPERATIONS IN THE IMPAIRED AREA

- Suspend or restrict non-critical cutting and welding.
- Halt spray painting and spray finishing operations.
- Restrict flammable liquid transfer and related operations.
- Eliminate heat-producing processes and sources.
- Eliminate all other hazardous operations that could cause a fire or increase the size of a fire.

NOTIFICATIONS

- Notify the local fire department of the impairment and temporary protection established.
- Notify The Insurer — go to **report an impairment**
- Advise facility management and emergency response team of the impairment and control measures established.
- Advise alarm companies and signaling stations of the impairment. Notify impacted employees of the impairment and actions they should take.

COMPARTMENTALIZATION

- Close fire doors in the impaired area.
- Secure exterior doors to protect against hostile fires.
- Secure fire control dampers, curtains, and partitions in the impaired area.

TEMPORARY FIRE PROTECTION

- Connect hydrants to the sprinkler riser.
- Place charged hose lines in the impaired area.
- Distribute extra fire extinguishers, as needed, throughout the facility. Establish extra security or fire watch patrols.
- Assign personnel to transmit fire alarms to the occupants and the fire department.
- Assign personnel to re-open fire protection valves in case of fire.

IDENTIFICATION

- Attach impairment tag to the impaired system (see attached).
- Develop and post a repair timetable.

AFTER THE IMPAIRMENT (RESTORATION)

- Verify the system is operational.
- Restoring all alarm services.
- Notify the Local Fire Department that the system is being restored.
- Notify all facility personnel that the system is restored.
- Notify the insurer that the system has been restored.

BALE DIMENSIONS DIAGRAM and CLASS A BALE

Physical Description

While ties/straps/bands length indicates bale thickness, other factors that play a role in determining bale thickness should not be ignored. Some of these factors are cotton's natural resilience, the force applied during bale pressing, and the bagging material used to protect the lint.

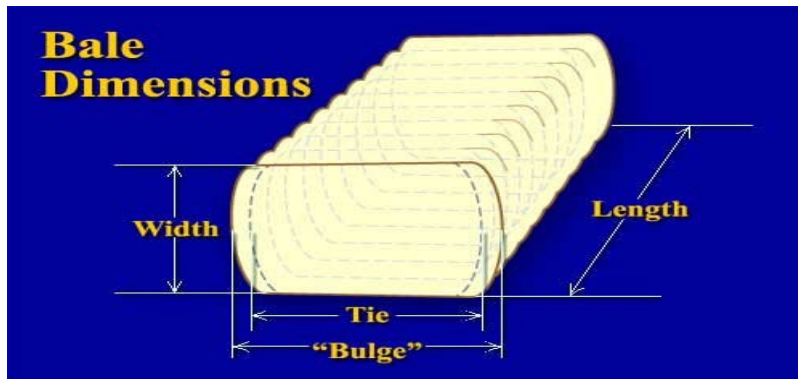
Size matters! Producing uniform, well-protected cotton bales for our mill customers is a primary goal of the U.S. bale packaging program. Uniform cotton bales benefit the U.S. industry by maximizing mill processing efficiency and creating efficiencies for everyone storing, handling, and transporting bales of cotton.

Gin Universal Density Bale*

Approximate Values	Units
English	SI
Net Weight	500 pounds /226.8 kg
Length	54-55 inches /1.37-1.40 m
Width	20-21 inches / 0.51-.53 m
Average Bulge Thickness	33 inches (or less) / 0.84 m (or less)
Volume	17 ft ³ / 0.48 m ³
Density	28 lbs./ ft ³ / 472 kg/ m ³

Note: These are approximate values, and some normal variations are to be expected.

*The JCIBPC Publication Specifications for Cotton Bale Packaging Materials provide gin universal density and gin standard density bale tie lengths for approved ties.



Baled Cotton Lint USA Domestic (Joint Cotton Industry Bale Packaging Committee (JCIBPC))

Grade A bales are characterized by the following:

- **Completely covered.**
- **Covered with JCIBPC-approved packaging and recommended patching material.**
- **JCIBPC specified the number of ties/straps/bands.**
- **Wire knots on ball of bale**
- **All ties/straps/bands recessed into the flat side of the bale (1) (Recommended)**
- **Square (level) heads.**
- **Permanent Bale Identification (PBI) tag on bale**

Grade A bales are generally considered acceptable. The recipients of cotton bales expect Grade A conditions and many times specifically require Grade A conditions in contracts.

U.S. Cotton Bale Dimensions

Description and characteristics of a typical U.S. gin universal density cotton bale. The Joint Cotton Industry Bale Packaging Committee (JCIBPC) established the following guidelines in 2001 to clarify the dimensions of cotton bales compressed to U.S. Gin Universal Density Bale standards: "...the outside bulge to bulge (thickness) dimensions shall average no greater than 33 inches (.84 m) and outliers are not to exceed 34 inches (.86 m)."

BALE COTTON WAREHOUSE COVERAGE

USDA Licensed Warehouses govern how they operate and what they are required to do in case of a claim.

The USDA has approved the USDA Cotton Warehouse to store cotton bales for a particular license capacity. This purchase capacity from the USDA is based on capacity, dependent on the size of the building and method of storage. They must carry insurance for direct physical loss to baled cotton stored in their warehouse facilities. However, they are only responsible for the published USDA growth region daily spot value on the day of the loss, plus any premiums or discounts.

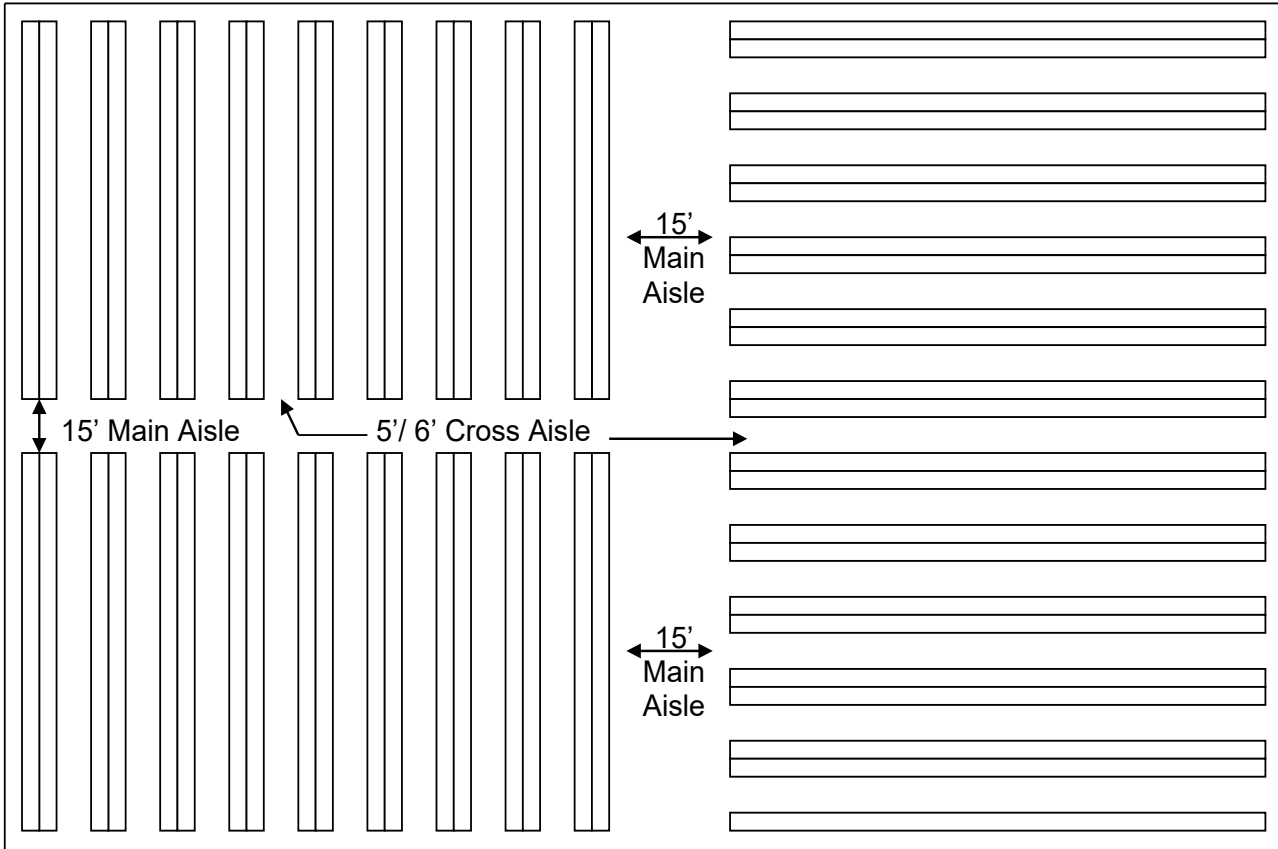
Warehouses have a locator system that is tied into EWR. The warehouse does not necessarily know which bales belong to which Merchant, Farmer, Pool, etc. They should have a list of Bale tag numbers by their warehouse building. The locator system should tell them where a particular bale is by its tag number. It should indicate the row or block for which warehouse building that bale is located.

CLAIMS

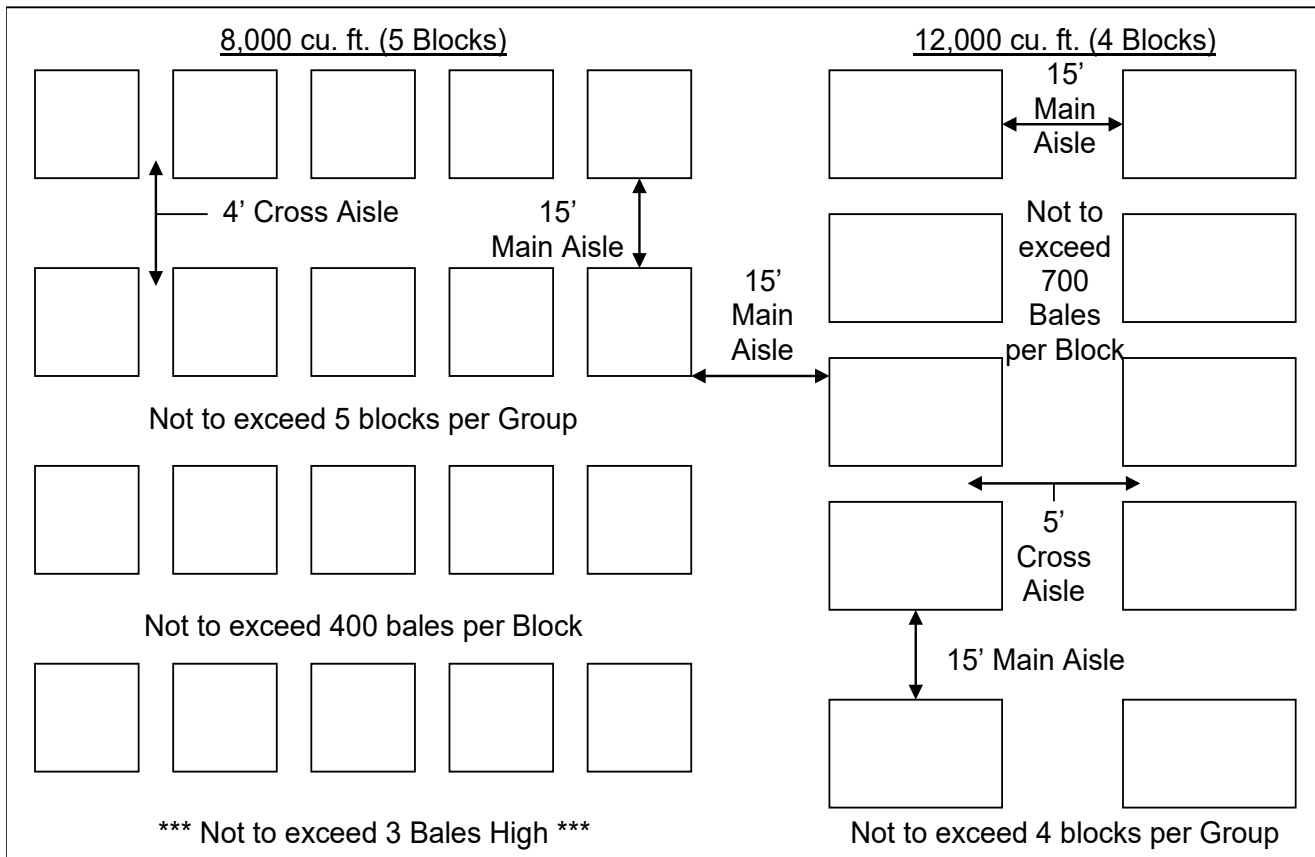
In the event of a fire or other insured loss, warehouses **MUST** notify the INSURANCE UNDERWRITERS, USDA, and EWR by providing them with a list of the bales involved in the claim. EWR posts the loss, and it is up to the Merchant, Farmer, Pool, etc., to sort which bales are theirs. The INSURER appoints an adjuster to settle claims presented on a spot price basis, including premiums and discounts. Every bale posted on that tag list supplied to INSURANCE UNDERWRITERS, USDA, and EWR must be accounted for, and the receipts must be returned for cancellation.

Baled Cotton Warehouse Storage

Double Row Cordwood Stacking not to exceed 8 Bales High



Block Storage – 8,000 cu. ft. or 12,000 cu. ft. per USDA [Handbook for Cotton Warehousemen](#).



NFPA 25: Guide to Testing and Inspecting Fire Sprinkler Systems

Readiness and prevention are the keys to fire and life safety. Unfortunately, most incidences of malfunctioning fire safety systems stem from insufficient testing and inspection. As a building or facility owner, you must take a proactive approach to establish a program for periodic testing, inspection, and maintenance. Otherwise, deficiencies such as inoperative fire pumps and inoperative sprinkler control valves may lead to disaster.

A lot is riding on your sprinkler system's ability to function properly. As such, you should make a habit of inspecting your fire sprinkler systems weekly. It's a requirement to hire a professional to carry out a full inspection at least once every year.

The National Fire Protection Association (NFPA) requires wet and dry systems to undergo testing every five years and a full performance test of the dry system every 3 years. That said, the NFPA 25 Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems requires certain weekly, monthly, quarterly, and annual inspections.

WEEKLY INSPECTION PROCEDURES

Inspect fire protection mains and branch lines prone to freezing temperatures to ensure proper functioning.

Visually inspect all fire doors to ensure they're free from obstructions and in good operating condition.

Inspect and test automatic and manual fire alarm systems.

Visually inspect gauges on dry, pre-action, and deluge systems to verify normal water and air pressures.

MONTHLY INSPECTIONS

The following testing and inspection requirements are in addition to those required for weekly fire sprinkler inspections.

Visually inspect all control valves to ensure they are accessible, free from external leaks, and in their normal position.

Visually inspect gauges on wet pipe systems to verify normal water pressure and ensure they're in good working order.

QUARTERLY TESTS AND INSPECTIONS

For hydraulically designed sprinkler systems, ensure the nameplate is legible and securely attached to the riser.

Test and inspect water flow alarm devices to ensure they're in good working condition.

Inspect pressure-reducing valves to ensure they're in the open position, free from leaks, and in good condition.

Mechanical water flow alarm devices should be tested quarterly. However, you can stick to semi-annual inspections if you have vane-type or pressure switch-type alarm devices.

Inspect fire department connections to ensure that they're in place, visible, accessible, free of physical damage, and working properly.

ANNUAL TESTS AND INSPECTIONS

NFPA 25 has very detailed instructions on annual testing and inspection procedures. Because of their complexity, annual fire sprinkler inspections should only be performed by licensed sprinkler contractors.

All sprinklers, hangers, pipes, and fittings should be tested to ensure good working conditions.

Main drain tests should be conducted on all sprinkler systems to verify control valves are in the open position and working properly.

Dry pipe valves should undergo a throttle trip test, cleaning, and resetting.

Deluge valves should have a full trip test at least once a year. The maximum frequency between full trip tests ought to be within 3 years.

Each antifreeze solution used in the systems should be tested and adjusted if necessary.

Nozzles on water spray systems should be visually inspected and tested for proper flow.

The system strainer should be removed and visually inspected for damage. Any corroded parts should then be replaced.



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FIRE PROTECTION WEEKLY INSPECTION REPORT

WAREHOUSE NAME & LOCATION: _____

Inspection by: _____ Date: _____

Complete inspection of all equipment and report status as found.

(Specific parts "not applicable" at locations should be marked "N/A.")

Automatic Sprinkler Equipment () yes () no **Central Station Supervision:** () yes () no

Are alarms devices intact and in good working order? () yes () no

If no, explain why: _____

Total number of compartments: _____ Total number of valves: _____ Are valves free of obstruction: () yes () no

If no, show locations: _____

Pressure gauge readings at riser average: _____ for water _____ for air. All check okay? () yes () no

If no, show locations: _____

During the past week, have all PIV valves been in "open" position and secure? () yes () no

If not, why? _____

Fire Department Connection okay? () yes () no

Gravity or reservoir tank full? () yes () no

Are all water flow alarms in good working order? () yes () no

All ring clearly () yes () no

If no, show locations: _____

Fire pump test? () yes () no Are all Fire Hydrants accessible and clear of weeds/debris () yes () no

Are sprinkler heads free of obstructions? () yes () no

Storage clearance at least 18"? () yes () no

If no, show locations: _____

Extra sprinkler heads on hand? () yes () no

FIRE PREVENTION AND PROTECTION EQUIPMENT:

Is there a *no smoking* rule in the warehouse and in other prohibited area? () yes () no

If no, show locations: _____

Number of chemical fire extinguishers in fixed locations _____ Trash receptacles provided? () yes () no

Inside Hose Connection: Hose and nozzle attached and properly racked? () yes () no Accessible? () yes () no

Fire Doors: Free of obstructions? () yes () no Are fire doors in good state of repair? () yes () no

If no, show locations: _____

GENERAL CONDITIONS:

Premises free of weeds/high grass? () yes () no

Premises free of piled trash? () yes () no

If no, show locations: _____

Flammable Liquids: Properly stored? () yes () no

If no, show locations: _____

Electrical: Electrical equipment and wiring free of damage? () yes () no Are Bales stored at least 3 feet from any electrical Panels or Outlets? () yes () no

If no, show locations: _____

REMARKS: _____

Approved by: _____

PLEASE COMPLETE THIS FORM ON A WEEKLY BASIS AND RETAIN FOR FUTURE REVIEW.

Cotton Warehouse Fires - The Arosa Solution:

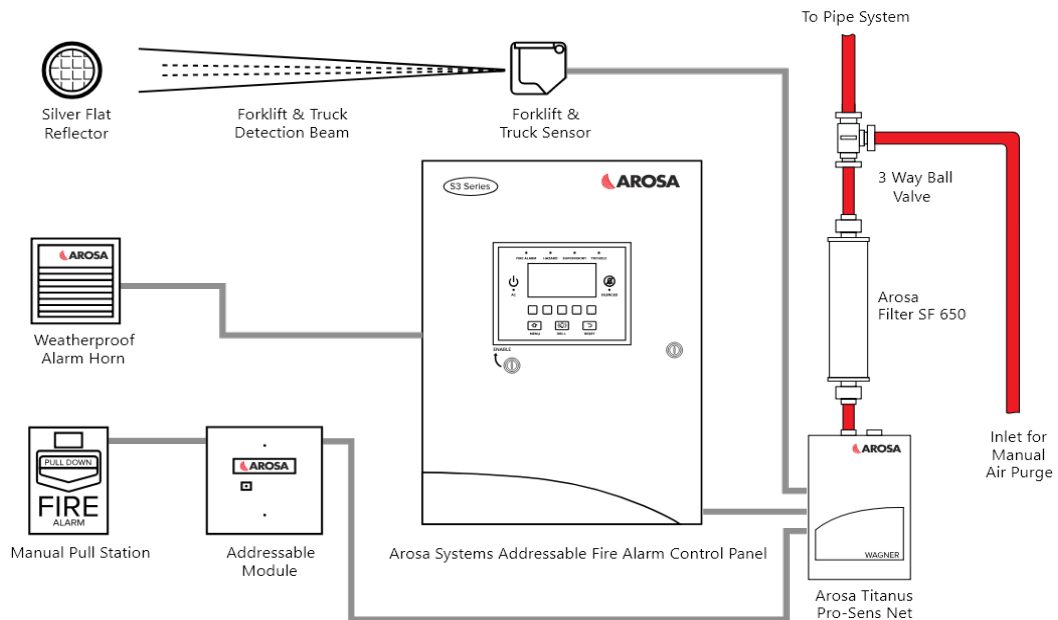
Fires in cotton bale storage warehouses (God owns) occur frequently around the world. These devastating fires start from a single spark that is created by forklift blades, sparking of electrical equipment, and even from a spark inside the bale as it arrives from the cotton gin (known as a “Hot Bale”).

Once the true fire begins, the only effective way to extinguish the burning bales is to completely drench them with water for hours and if possible, remove them from the warehouse into the yard – a dangerous operation for all involved.

Cotton bale warehouses are normally open only when the bales are delivered, then the large doors are closed and locked until the bales are required by the spinning department. It is during this closed period that a spark can smolder for hours or days before erupting into an uncontrollable fire – these early stages are the time when the Arosa System is doing its job to actively detect particles of combustion, even before the fire can begin.

Experience has proven that traditional spot smoke detectors do not work well in these harsh environments. Cotton dust, humidity and forklift smoke contaminate traditional smoke detectors and trigger false alarms or cause them to fail, usually without any notice or indication.

<https://arosasystems.com/aro-smoke/>



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Nitrogen Generator for Dry Sprinkler Systems

January 22, 2019

Sprinkler systems are a vital part of building safety and are often required under building codes. In the past, fire suppression sprinkler systems were wet systems- that is, systems where the water is contained within the pipes of the sprinkler system at all times. This type of system had several disadvantages, but the main problem was that the water was likely to leak.

Over time, wet systems are likely to experience drips or even have valves fail. Failure of wet sprinkler systems can cause water leakage and result in catastrophic damage to property within the building. These problems have led the switch from wet systems to dry sprinkler systems.



The Dangers of Sprinkler Pipe Corrosion

As long as there have been fire suppression sprinkler systems, there have been problems with corrosion. Corrosion gradually creates localized pinholes within the pipes which, if left unchecked, will lead to leaks and valve failures. Even sprinkler lines that don't show external signs of leaking can be compromised to the point where they will not work in the event of a fire. Non-functioning sprinkler systems can allow minor fires to spread and can result in disastrous property and personnel losses.

Steel pipes are subject to corrosion and their deterioration process begins once the pipes are installed. While dry sprinkler systems don't have the leakage issues experienced by wet systems, the dry fire protection systems are more prone to corrosion. Corrosion results when oxygen, metal, and water are brought together. In this combination, water provides the electrolytes, oxygen offers the electrochemical potential, and together they react with the unprotected metal. The solution might seem to be avoiding the use of metal pipes altogether. PVC pipes can be used in some settings but larger sprinkler systems require stronger steel pipes.

Even though dry sprinkler systems are "dry" they still have exposure to moisture in the air, which is enough water to lead to corrosion. They are only filled with water when the sprinklers have been activated. When the system is inert the pipes are filled with gas. In the past, dry systems were filled with air. This made them more prone to corrosion since the mixture of gases in the air allows condensation to form inside the pipes. The solution to this problem is to fill the pipes with nitrogen.

What Is a Nitrogen Fire Suppression System?

Nitrogen fire suppression systems are dry sprinkler systems filled with nitrogen rather than compressed air. Since nitrogen is inert, it does not provide an environment that is conducive to corrosion. There are no risks if the nitrogen leaks into the surrounding air.

Switching to a nitrogen gas fire suppression system instead of using compressed air may seem like a relatively small change but the difference in durability is dramatic. On average, air-filled dry sprinkler systems are expected to last 12-15 years. Nitrogen fire suppression systems can have a life expectancy of 60-75 years, depending on the type of piping materials used.

Galvanized pipe that is part of a nitrogen sprinkler system has an expected lifespan of 92 years compared to as little as 7 years in a compressed air system. Black steel piping can last 48 years in nitrogen systems instead of the 16 years for the air-filled system.

The use of a nitrogen-based sprinkler system results in a substantial difference in long-term replacement costs over the life of a building. In addition, corrosion-resistant nitrogen sprinkler systems eliminate the ongoing need to check for leaks and corrosion and make repairs. The extended lifespan provided by nitrogen can even make it practical to install less expensive black steel piping instead of galvanized pipes.

While best results are achieved by filling new systems with nitrogen, the lifespans of existing air-filled dry sprinkler systems can be extended by switching to nitrogen. Flushing out the compressed air and replacing it with nitrogen will retard corrosion to preserve the integrity of the pipes.



How Does a Nitrogen Dry Sprinkler System Work?

A nitrogen dry sprinkler system uses a series of piping to provide water when needed to extinguish a fire. The sprinkler lines are filled with nitrogen to prevent corrosion when not in use. This makes nitrogen sprinkler systems different from wet sprinkler systems that are filled with water and dry air sprinklers that are filled with compressed air.

Although nitrogen sprinkler systems can be filled using tanks of nitrogen, the preferred option is to use a nitrogen generator for fire sprinkler systems. These nitrogen generators produce nitrogen on site by extracting nitrogen from the air. Typically, an attached air compressor forces air into the generator where it passes through a membrane to extract the nitrogen.

Learn more about the operational benefits of a [membrane nitrogen generator](#) today.

Having an onsite nitrogen generator for fire protection is considerably more convenient than using tanks of nitrogen. Many building managers prefer not to have high-pressure tanks stored on site, and the use of tanks of nitrogen requires monitoring tank levels

and scheduling deliveries. A nitrogen generator can be used to maintain the levels of nitrogen within the system with little maintenance required. Additionally, nitrogen generators are more cost-effective than nitrogen deliveries.

Nitrogen generator fire protection systems can also include the use of nitrogen pressure swing adsorption (PSA) systems. PSA technology is used to separate different types of gas under pressure. Adsorbent materials are used to trap the targeted gas at high pressure. Then a switch to low pressure results in the release of the gas by the absorbed material.

Two adsorbent vessels can be used together to provide near-continuous production of the target gas. As one vessel is depressurized to release the target gas, that pressure can be transferred to the other vessel. This reduces the amount of energy necessary to operate the PSA nitrogen generator and results in significant energy and cost savings.

Keep in mind the importance of switching to nitrogen dry sprinkler systems as soon as possible to prevent corrosion and extend the useful life of your fire suppression system.

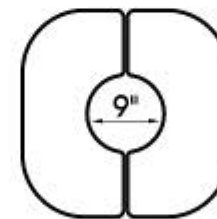
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