



**National Grain
and Feed Association**



INTERWEST
INSURANCE SERVICES, INC.

Fire and Explosion, Control of Combustible Dust Substances and Processes

Scott Pitman

InterWest Insurance Services

October 15, 2014

Fresno, Calif.



Presentation Objectives

- Cal/OSHA v. Federal Standards
- Assimilating an understanding of the Code
- How Can They Directly Impact You?
- What Means to be Compliance?



History

- Between 1958 and 1982 there were 434 documented explosions in US grain handling facilities.
- Resulting in 776 injuries and 209



Most Sited OSHA Standards in Grain Handling Industry

Most frequently cited standards in 1910.272 include:

- 1910.272 J01 – failure to implement a written housekeeping program for fugitive dust.
- 1910.272 J02II – failure to immediately remove fugitive dust accumulations, or provide equivalent protection.
- 1910.272 G01 III – failure to test the atmosphere within a bin before employees enter.
- 1910.272 G01 II – failure to de-energize and disconnect all equipment in a grain storage.
- 1910.272 M03 – failure to maintain a certification record of performed preventative maintenance inspections.
- 1910.272 G01 I – failure to issue a permit prior to entering the bin.
- 1910.272 G04 – failure to provide rescue equipment suitable for the bin being entered.
- 1910.272 D – failure to implement an emergency action plan.
- 1910.272 E02 – failure to train employees for special tasks, such as bin entry.
- 1910.272 G02 – failure to provide lifelines and harnesses for employees entering the bin at or above the level of the grain.



Discussion Points

- Sections and Standards – State v. Federal
- Scope, Application & Definitions
- Emergency action plan
- Training needs for employees
- Hot work permit guidelines
- Housekeeping program guidelines
- Written program requirements
- Inspection, cleaning frequency
- Explosion, venting suppression



Emergency Action Plan – Calif.

§3220. Emergency Action Plan.

- Written Plan Required
- Emergency escape procedures and emergency escape route assignments
- Procedures to be followed by employees who remain to operate critical plant operations before they evacuate
- Procedures to account for all employees after emergency evacuation has been completed
- Rescue and medical duties for those employees who are to perform them
- The preferred means of reporting fires and other emergencies



Training Requirements – Calif.

§3203. Injury and Illness Prevention Program

- Provide training and instruction
- To all new employees
- To all employees given new job assignments for which training has not previously been received
- Whenever new substances, processes, procedures or equipment are introduced to the workplace and represent a new hazard
- For supervisors to familiarize themselves with the safety and health hazards to which employees under their immediate direction and control may be exposed



Hot Works Permit - Required 1910.272(f)

Federal Standard

- Involves electric or gas welding, cutting, brazing or similar flame producing operations
- Permits needed for all Hot Work, with exceptions
- In welding shops
- In authorized areas
- Employer (signatory) is present during Hot Work
- - Keep permit at work site until completion of hot work
- How long do you keep Hot Work Permits?
- Permit certifies 1910.252(a) is implemented prior to the beginning of hot work

Hot Works Permit - Required cont.

WELDING, CUTTING & HOT WORK PERMIT

This permit shall be filled out completely and each item initialed by the Plant Manager or designated Supervisor and the Employee, who is to perform the work, before any welding, cutting or hot work is performed in any grain handling or processing area. The authorizing Manager/Supervisor and employee shall physically inspect the area for all listed safety requirements. If equipment is being repaired or installed, proper lockout procedures shall be followed. **Welding and Cutting shall not be permitted inside or within 50' of any facility building/structure unless that building/structure is completely shut down and isolated from the rest of the facility. (All Managers, Supervisors, workers shall know and comply with Corporate safety procedures).**

Location:	Date:	Time:
Description Of Work:		
Person(s) Performing Hotwork:		
Safety Requirements:		
1. All operations in the building/structure/area, including dust systems, are completely shut down and isolated.	<input type="checkbox"/>	----
2. Combustible gas test conducted, (if applicable) (tests should be done in all areas)	<input type="checkbox"/>	----
3. Conveyors, legs, fans and other equipment associated with the building/structure/area are shut down and locked out.	<input type="checkbox"/>	----
4. All spouts, ducts, floor, wall, and bin openings tightly covered and sealed. Do not cut or weld on spouts lined with combustible materials such as polyethylene, urethane, rubber or PVC.	<input type="checkbox"/>	<input type="checkbox"/>
5. Floors, walls, and surrounding area thoroughly cleaned of exposed combustibles and area wet down. (No exposed combustibles are allowed within 50' of the work, area and shielded from sparks with non-combustible material). (If freezing conditions exist, wetdown may be omitted).	<input type="checkbox"/>	----
6. Fire extinguisher(s) readily available within 25' of the work area.	<input type="checkbox"/>	----
7. Welding, cutting and hot work equipment is inspected for safe condition before use and personal protective equipment is obtained before beginning work.	<input type="checkbox"/>	----
8. Fire watch scheduled to inspect work area, and areas below, every 30 minutes for a minimum of 4 hours after completion of work. Fire watch time may be greater depending on conditions.	<input type="checkbox"/>	----
Employee(s) or Contractor Performing Hot Work		
Facility Manager or Designate Issuing Permit		
Expiration of permit (not to exceed one shift duration)	Date:	Time:
Completion of Hot Work	Date:	Time:

333,657 • Victor Lundberg Co. Printers • Fargo ND, Minnesota

ORIGINAL – TO HOTWORK SITE COPY – HELD BY PERMIT WRITER
COMPLETED PERMIT TO BE KEPT ON FILE FOR A 1 YEAR PERIOD MINIMUM.



Fire Prevention and Protection 1910.252(a)

Federal Standard

- Remove all combustible material on floor and on floor below where sparks may fall
- Fire extinguishing equipment handy
- Fire watch required If combustible material is within 35 feet of operations
- If combustible material is over 35 feet away but is easily ignitable
- If combustible material is adjacent to the opposite side of partitions
- Fire watch is maintained a minimum of 30 minutes after completion of work
- Responsible official shall inspect and permit before work begins



Housekeeping, Fire Prevention

§3221. Fire Prevention Plan – Calif.

- Housekeeping. The employer shall control accumulations of flammable and combustible waste materials and residues so that they do not contribute to a fire emergency. The housekeeping procedures shall be included in the written fire prevention plan.

Housekeeping Program Requirements 1910.272(j)(1)

Federal Standard -

- Must be in writing areas to be cleaned
- Frequency
- Methods
- Assignments
- Address ledges, floors, equipment and other exposed surfaces

Use of Compressed Air 1910.272(j)(3)

Federal Standard

- Use of compressed air to clean shall only be permitted when all machinery that presents an ignition source in the area is shut down, and all other known potential ignition sources in the area are removed or controlled
- Respirator requirements for blowdown?

Blowdown Permits

Sample Air blowdown permit

Date _____ Time _____ Expiration _____

Areas to be cleaned by blowdown _____

Tasks or activity to be done	YES	NA	Initial
1. All equipment <i>in the area completely shut down in the grain elevator or other hazardous areas.</i>			
2. All lights and electrical equipment that is to remain energized is in good condition and rated for the area.			
3. There are no Potential ignition sources such as arcs, sparks or hot surfaces in the area. (Check bearings, shut down equipment, eliminate heat sources (steam, etc.))			
4. All Personnel exposed to blowdown dust will wear proper PPE, such as, dust masks, and goggles.			
5. Air Pressure is limited to 30 psi at the end of the nozzle.			

Authorized Employees _____

Issued by (signed) _____
(Supervisor or designated person.)

Fire Prevention, Written Program

§3221. Fire Prevention Plan

- This section applies to all fire prevention plans. The fire prevention plan **shall be in writing**
- Elements. The following elements, at a minimum, shall be included in the fire prevention plan
- Potential fire hazards and their proper handling and storage procedures, potential ignition sources (such as welding, smoking and others) and their control procedures, and the type of fire protection equipment or systems which can control a fire involving them
- Names or regular job titles of those responsible for maintenance of equipment and systems installed to prevent or control ignitions or fires
- Names or regular job titles of those responsible for the control of accumulation of flammable or combustible waste materials



Portable Fire Extinguisher – Requirements

§6151. Portable Fire Extinguishers – Calif.

- The employer shall provide portable fire extinguishers and shall mount, locate and identify them so that they are readily accessible to employees without subjecting the employees to possible injury
- The employer shall distribute portable fire extinguishers for use by employees on Class A fires so that the travel distance for employees to any extinguisher is 75 feet (22.9m) or less
- The employer shall be responsible for the inspection, maintenance and testing of all portable fire extinguishers in the workplace

Preventive Maintenance

§3221. Fire Prevention Plan

- Maintenance. The employer shall regularly and properly maintain, according to established procedures, equipment and systems installed in the workplace to prevent accidental ignition of combustible materials
- Employee training and record retention is required

Preventive Maintenance 1910.272(m)

- **Federal Standard**
- Certification records must be maintained
- Date, name, equipment
- “Work Orders would be an indication of an effective PM program”
- Use proper lock-out and tag-out procedures when servicing equipment



Written Programs – Calif.

- What's Required
 - IIPP
 - Heat Illness Prevention
 - Emergency Action
 - Fork-lift
 - Bloodborne Pathogens
 - Confined Spaces
 - Dust Control Explosion Hazards
 - Hazard Communication – GHS
 - Fall Protection
 - Hot works
 - Lockout / Tagout
 - Fire Extinguisher Use
- Not an inclusive list



PM Program Requirements 1910.272(m)

Federal Standard

- Form of program not discussed (*electronic or written*) – rule just says you need one
- Regular scheduled inspections of at least mechanical and safety control equipment associated with dryers, process equipment dust collection equipment and bucket elevators



Cal/OSHA - Consultation

- For help on working safely in Confined Spaces
- Toll-free Number: **1-800-963-9424**

- **Onsite Assistance Program Area Offices**
- Central Valley: 559-454-1295 - San Diego/Imperial: 619-767-2060
- No. California: 916 263-0704 - San Bernardino: 909-383-4567
- SF/Bay Area: 510-622-2891 - San Fernando Valley: 818-901-5754
- Santa Fe Springs/LA/Orange: 714-562-5525

Consultation Programs:

<http://www.dir.ca.gov/dosh/consultation.html>



Thank You!

Scott C. Pitman

Risk Manager, InterWest Insurance, Inc.

530.897.3166

scpitman@iwins.com

