OSH Information Memorandum 97-X-80
(Revision of 89-X-80)

TO: OSHA Compliance Personnel

FROM: W.M. Lybrand

SUBJECT: Grain Handling Facilities – Inspection Guidance and Standard Clarification

DATE: September 25, 1997

A. Purpose

This memorandum provides inspection guidance and clarifications to the Grain Handling Facilities Standard, 1910.272

B. Cancellation.

OSH Information Memorandum 89-X-80, dated April 14, 1989, is cancelled.

C. Background

1. The standard culminates several years of effort by OSHA in response to the hazards found in grain handling facilities, particularly fires and explosions. It became effective March 30, 1988, except for housekeeping which was delayed until August, 1988. Revisions to paragraph (g) and new paragraph (h) addressing engulfment hazards in bins, silos, and tanks and in flat storage structures, respectively became effective July 26, 1996. The final rule addresses both hazards to employees presented by potential fires and explosions and other safety hazards (e.g., bin entry).

2. Although the final rule applies to all grain handling facilities, it is not a "vertical" industry standard intended to address all hazards to be found in workplaces of this type. Therefore, the standards contained in Section 1910 for general industry and Section 1917 for marine terminals, as appropriate, will continue to apply to grain handling facilities. Section 1910.272, however, takes precedence inside the grain handling facility over other provisions in Section 1910 and Section 1917 for the specific hazards the grain standard addresses.

D. Interpretation

The following clarifications are provided to assist field personnel in conducting inspections.

1. Scope and Application, 1910.272(a) and (b).

The majority of facilities covered by the standard are in Standard Industrial Classifications (SICs):

(a) 2041, Flour and Other Grain Mill Products;

(b) 2044, Rice milling;

(c) 2048, Prepared Feeds and Feed Ingredients for Animal and Fowls, Not Elsewhere Classified;

(d) 4221, Farm Product Warehousing and Storage; and

(e) 5153, Grain.

Facilities in the following SICs are generally not covered by the standard:

(a) 2043, Cereal Breakfast Foods;

(b) 2045, Blended and Prepared Flour;

(c) 2047, Dog, Cat, and Other Pet Food; and

(d) 2051, Bread and Other Bakery Products, Except Cookies and Crackers.

Covered workplaces may also be found in other SICs (such as those listed above) where they are not the primary business. If a facility has a grain elevator onsite which receives, handles, stores, and ships (including transfer to another part of the facility) a bulk raw agricultural commodity, the standard applies to the grain elevator. An example of this type of facility is a grain elevator used in supply of a brewery. (The important factor is that a bulk raw agricultural commodity enters the facility, is handled and stored, and then leaves the facility in the same form: a bulk raw agricultural commodity.)

The standard does not apply to "seed plants" which handle and prepare seeds for planting of future crops; however, such facilities are covered by the Part 1910 Standards, including 1910.146 and 1910.147. Agricultural operations are not covered in Part 1910; therefore, 1910.272 does not apply to on-farm storage or feedlots.

If the CO/IH is uncertain as to what constitutes "raw agricultural commodities", or the explosibility index of agricultural dusts, references include the Bureau of Mines report and the National Academy of Sciences' "Classification of Combustible Dust in Accordance with NEC." (See Appendix A, References, of this instruction.)

2. Emergency Action Plan, 1910.272(d)

(a) 29 CFR 1910.38(a), Employee emergency action plans and fire prevention plans require the emergency action plan to be in writing except for employers with 10 or fewer employees. However, employers with 10 or fewer employees will still have to comply with 1910.38(a) requirements and be able to substantiate that the plan is being communicated orally in an effective manner.

(b) All employees, including truck drivers, sales and office personnel, seasonal employees, and part-time employees, shall be included in determining the total number of employees at a given workplace.

3. Training 1910.272(e)

Emloyees are required to be trained in the recognition and prevention of hazards associated with grain handling facilities, especially those hazards associated with their own work tasks.

(a) CO/IHs shall verify whether employees are trained in all aspects of safety and health related to their job tasks. They shall also verify whether employees are trained not to introduce ignition sources (sparks, arcs) through the use of electric tools, and through grinding or drilling, in hazardous areas containing combustible dusts. Other ignition sources include welding, cutting, use of open flames or smoking materials into hazardous areas.

(b) The standard does not require that training records be kept to verify that employees have been adequately trained. Therefore, the CO/IH shall substantiate the adequacy of training by reviewing the employer's training records, if offered by the employer, and by interviewing a sample of employees.

(c) Employers shall commence the training of employees prior to their assignment.

(d) In addition to the training information and references listed in Appendix A.3. and Appendix C of the standard, see also Appendix A. References, of this instruction.

4. Hot Work Permit, 1910.272(f)

(a) If a permit is issued, the employer representative need not be at the specific "hot work" site during the entire time the work is performed. It is reasonable to expect that the employer should monitor frequently- at least each shift- to ensure that permit requirements are being followed.

(b) If the employer elects to have a representative present in lieu of a written permit, the employer must still follow the same requirements as if a permit were

issued in accordance with Section 1910.272(a). The representative must in this situation be present for the entire duration of the job.

(c) The term "flame producing" used in the definition of "hot work" at Section 1910.272(c), includes ignition sources (sparks, arcs) produced by operation of electric tools and grinding or drilling. Hot work permits are therefore necessary for these types of operations as well.

5. Entry into Grain Storage Structures, 1910.272(g).

This paragraph amends the former paragraph (g) in several ways. However, bins, silos, and tanks continue to be covered by new paragraph (g). Flat storage structures including certain tanks, which do not have any atmospheric hazards, are now covered in a new paragraph (h).

(a) A life line (body harness attached) used for entry procedures shall be of such length that it would not allow the employees to sink any further than waist deep in the grain.

(b) If the employer or representative (who would otherwise be authorized to issue the entry permit) elects to remain present during the entire operation, a written permit is not required. All other provisions of 1910.272(g) must still be complied with.

(c) When the CO/IH can verify that fumigants have been applied, the employer's program for fumigation procedures and testing of the atmospheres for toxicity shall be reviewed. The hazard analysis under 1910.132(d) should be reviewed for appropriate PPE being used.

(d) The CO/IH shall ask the employer to verify the procedure(s) used to ensure that testing equipment used to determine hazardous atmospheres, including but not limited to pesticides, fumigants, dust, and oxygen deficiency is properly calibrated and maintained prior to use.

(e) If testing the atmosphere indicates oxygen deficiency and/or the presence of toxic and flammable gases above the specified limits, the CO/IH shall ensure that employers are provided with the required ventilation and/or PPE before entry.

(f) Aeration fans can constitute forced air ventilation even when grain is covering the aeration ducts, provided that the air exits the duct at above the grain level.

(g) The CO/IH shall evaluate the type of rescue equipment available to determine its adequacy for each particular situation (i.e., types and configurations of bins, which may be somewhat different at each facility). The employer may have to establish that the equipment is suitable to perform the task for the particular facility.

(h) Employees are forbidden to walk or work on the surface of grain which is to support them until the employer has verified that engulfment hazards do not exist as a result of a bridging condition, air pocket or void space below the surface of the grain, or that the depth of grain is not sufficient to present engulfment hazard in the specific bin, silo or tank. Probe tests sufficient to detect any air pockets or void spaces may be one way to assess the stability of the grain surface. However, if a worker must stay on the grain to conduct such tests, the worker must be protected from engulfment during the tests. Grain depth may be analyzed based on use and documentation to show that there are no recent draw-off problems, moisture problems from open hatches, leaking roofs, etc., and that any previous problems have been corrected. Certain agricultural commodities such as flax, millet, and oil seeds present additional hazards that must be addressed by the employee if they are involved in the entry. The employer must be able to show the lockout and tagout procedures are in effect to prevent any grain or grain product conveying machinery from operating while the employee is supported on the grain. The employer is to verify that all employees, before being permitted to walk on stationary grain, will have completed the training required in paragraph 1910.272(e).

(i) Employees are forbidden to "walk down grain" for the purpose of making grain flow to the draw-off equipment which may or may not be running.

(j) When employees are to free caked, plugged, or bridged grain to move it, such as to a center draw off, the employee's body weight is to be supported in a boatswain's chair with a life line suspended from the top. The boatswain's chair shall be supported by slings attached to a suspended rope, and shall be designed to accommodate one person in a sitting position. The CO/IH shall ensure that employers provide an observer equipped with communication mode, who maintains contact with the employee entering the silo, bin or tank. The CO/IH shall ensure that the observer is trained and equipped for rescue operations. The employee is expected to use a tool, such as a long rod, to force grain toward the draw off equipment or to remove it from the sides of the grain storage structure. The employer is to verify that the employee will not be exposed to mechanical hazards. Where the employer states a greater hazard exists, both engulfment and mechanical hazards must be addressed by alternate means.

(k) Employees are permitted to walk on the grain when cleaning bottoms of bins, or for other purposes, without a lifeline and harness when the employer has verified that the depth of the grain will not result in an engulfment hazard. The employer is also to verify that the employee will not be exposed to mechanical hazards. Employers shall not permit employees to enter silos whenever bridging conditions or grain funneling (side building) exists).

6. Entry into Flat Storage Structures, 1910.272(h).

This new paragraph addresses grain storage structures that will not empty completely, without mechanical equipment or manual means being used, and can be entered from the ground level through regular or larger doorways or openings. Entry into these grain storage structures under this section is permitted only in the absence of actual or potential atmospheric hazards. Entry into those that may have atmospheric hazards is covered in the new paragraph (g). Flat storage structures may include flat bottom tanks, buildings where grain is stored on the floor, tents, or other structures where grain is stored in a pile in bulk on a flat bottom surface.

(a) When employees are permitted to walk on the grain product without a restraint system, (such as may be done by Federal or State grain warehouse inspectors) the employer must show that all equipment such as, but not limited to augers or transport equipment, shall be deenergized, disconnected, and locked out. The employer shall demonstrate that lockout and tagout procedures are in effect to prevent any movement of a grain or grain product in the area where the employee is expected to walk. Also the employer must verify that there is no recent history of draw-off problems that could create cavities in the grain pile. The employer is to verify that those employees involved in this task will have completed the training required in paragraph 1920.272(e) before walking on the grain or grain products.

(b) Where lifelines are used, their length will not allow the employees to sink any further than waist deep in the grain.

(c) "Walking down grain" for the purpose of making the grain flow or any other purpose is prohibited in flat storage structures. See item 5.h.

(d) No employee shall be permitted to work underneath bridging conditions or in any location where the possibility of engulfment from falling grain exists.

7. Contractors, 1910.272(i).

(a) The intent of the phrase "shall inform": is that an employer is to provide specific instruction to contractors on the safety rules of the facility, including applicable provisions of the emergency action plan. Simply providing a copy of the safety program, for examples, would not ensure that the contractor has received sufficient information to take adequate precautions to prevent exposure to potential hazards.

(b) A "contactor" is an individual, group of individuals, firm, or entity who enters the premises for the purpose of performing work and who may be exposed to hazards during the course of performing work. This normally would not include service or inspection-related persons, e.g., vendors, delivery personnel, or insurance representatives, unless they pose or could create a hazard to facility employees while performing their duties.

8. Housekeeping—General, 1910.272(j).

The standard incorporates strict and clear requirements for employers to adopt housekeeping practices determined best to reduce accumulations of grain dust.

(a) 1910.272(j)(1) is applicable to grain elevators and those mills specified at 1910.272(b)(1), application.

(b) 1910.272(j)(2) applies only to grain elevators and not to processing or mill operations.

(c) In order to substantiate violations of the employer's housekeeping programs, CO/IHs shall carefully prepare the evidence by documenting the specific procedures the employer utilizes to keep dust accumulations at a minimum. Such documentation must address at least the following:

(1) Manual dust removal procedures, including frequency and extent.

(2) Condition and effectiveness of the system, including maintenance and repair on closed conveyance systems. (i.e., leaking spouts, worn-out gaskets, flanges, and other similar emission sources)

(3) Representative measurements and photos shall be taken to document apparent violations of the general housekeeping provision of the standard. (See 1910.272, Appendix A.) It may be necessary to take several measurements at specific locations within the general area. The locations shall be identified on a plant sketch.

NOTE: Because of spark-producing potential, no equipment including flash bulbs and electronic flashes (cameras) or electrical equipment, shall be used in hazardous areas in grain handling facilities unless the equipment is approved for use in these types of areas.

(4) Areas of particular concern beyond the priority areas are the grain transfer points, such as galleries (bin floors) and tunnels.

(5) Representative samples of dust shall be taken in areas where apparent violations of the general housekeeping provision exist to verify organic dust percentage, moisture content, and particle size. Sample quantities will not normally have to exceed one-half pint at each location.

(6) When the employer elects to utilize additives to control the dust rather than collection and other control methods, the CO/IH shall document the types used, specific application points and application rate, and shall verify the effectiveness of the method through appropriate sampling and measurement.

9. Housekeeping—Priority Areas in Grain Elevators, 1910.272(j)(2).

The standard establishes a 1/8-inch action level for housekeeping regarding grain dust accumulations in priority areas in grain elevators. This provision requires either an initiation of a cleanup wherever the 1/8 inch action level is exceeded, or an alternative method which provides "equivalent safety". If the employer chooses not to initiate cleanup actions whenever the grain dust level exceeds 1/8 inch, and instead chooses an alternative method, such as treating a grain stream with oil additives which inhibit the combustibility of any dust that is emitted from the grain handling system, or "wetting down" the areas of dust accumulation using either an oil- or water-based solution, as a means of compliance of this standard, then the employer must demonstrate that those accumulations (oil or water treated) do not pose a greater fire explosion hazard than would exist if the grain dust was removed prior to its accumulation of more than 1/8 inch.

(a) A representative number of measurements, photos, and samples shall be taken of all floor areas within a priority area to document a violation of the 1/8-inch action level; they shall be noted on a plant sketch.

NOTE: Because of spark-producing potential, flash bulbs and electronic flashes shall under do circumstances be used in grain handling facilities.

(b) The CO/IH shall use professional judgment to assess the extent of a hazard presented by a given identified accumulation of grain dust. Small amounts of dust accumulation in isolated spots of the floor would not normally be classified as a violation of the requirement. Additionally, all other types of surfaces within the priority areas that have excessive accumulations of dust shall be identified and documented as a potential violation of the overall housekeeping program specified by 1910.272(j)(1).

(c) A priority area shall not be considered to include sections that are separated by walls, partitions, and/or control rooms or offices with positive pressure and self-closing doors.

10. Blowdown Operations, 1910.272(j)(3).

(a) Equipment may be operated during blowdown operations if the following conditions exist:

1. The equipment is dust-tight and dust ignition-proof; or the equipment is intrinsically safe (i.e., insufficient heat or thermal energy to ignite combustible dust); and

2. The bearings are effectively monitored; and

3. An effective preventive maintenance program has been implemented.

(b) Isolation techniques, shrouding, etc., should be encourage and can be acceptable to minimize dust suspension and dispersal of accumulated dust.

11. Grain and Product Spills, 1910.272(j)(4).

Product spills, especially in flour mill operations, should receive prompt attention. These spills shall be cleaned up after identification. Grain spills do not present the same hazard as product spills and should be cleaned up as soon as practical after identification.

12. Grate Openings, 1910.272(k).

Employers should be encouraged to utilize magnets and openings as small as possible in the receiving grate to minimize the hazard potential.

(a) In special circumstances where commodities (such as corn cobs) cannot pass through the specified-sized grate openings (maximum width of 2.5 inches or 6.35cm.), grates with larger openings may be used to accommodate the commodity if magnets are used at the receiving pit or if suspended magnets are used over conveyance systems prior to entering the boot of the elevator leg.

(b) Where applicable, CO/IH shall evaluate the compliance of grate openings with 1910.23.

13. Filter Collectors, 1910.272(l).

Product and/or process filters are not covered by this paragraph. An excellent reference for both the CO/IH and the employer to evaluate and aid in abatement of problems with filter collectors is the National Academy of Science publication "Pneumatic Dust Control in Grain Elevators". (See Appendix A, References, of this instruction.)

14. Preventive Maintenance, 1910.272(m).

(a) The standard does not require a specific frequency for preventive maintenance. The employer is permitted flexibility in determining the appropriate interval for maintenance provided that the effectiveness of the program can be demonstrated.

(b) The CO/IH shall particularly document and analyze the program and its effectiveness based on the time period. The program must be adequate for the peak period, such as during the harvest season. If the inspection is being conducted at a time other than harvest season, the CO/IH shall conduct evaluation of programs (e.g., by interviewing sufficient key employees) to determine conditions and adequacy of preventive maintenance.

(c) Manufacturers' recommendations for equipment can assist CO/IHs is determining the adequacy of maintenance frequency criteria.

(d) Bearings not associated with inside bucket elevators (i.e., those located on gallery and tunnel belts, mechanical equipment) must have inspections and proper lubrication as required by 1910.272(m)(1)(ii).

15. Emergency Escape. 1910.272(o)(1).

(a) Employers will need to provide at least one emergency escape from the headhouse or any floor between the headhouse and ground level, in accordance with 1910, Subpart E. Controlled descent devices and escape ladders are acceptable means of escape from galleries and bindecks. Manlifts (belts, caged, manual) are not considered an adequate means of escape; however, a fixed ladder in a manlift shaft is acceptable. Scale floors and headhouses must still meet appropriate provisions in 1910, Subpart E.

(b) If controlled descent devices are used, they shall be adequate to accommodate employees or occupants from a given area of the facility. All employees who work in the area served by the controlled decent devices shall be trained in their use and provided with a sufficient amount of interface equipment such as body harness(es) and line to safely reach the ground or other walking surface.

16. Continuous-flow Bulk Raw Grain Dryers, 1910.272(p)(1)(ii).

The CO/IH can rely on the manufacturer's recommendations for maximum operating temperature of the drying section to determine or evaluate what is considered "excessive" temperature.

17. Inside Bucket Elevators, 1910.272(q).

Elevator legs in mills will still have to comply with the requirements in 1910.272(m)(1) for preventive maintenance even though they are not covered by 1910.272(q). (See 1910.272(b), Application.)

18. 1910.272(q)(2).

When an employer has documentation that will verify that the belt characteristics meet the 300 megohm requirement for belts purchased after March 30, 1988, it will be considered to be in compliance.

19. 1910.272(q)(4)(ii).

If any portion of the bearing (including inner dust seal) is making contact with the interior of the leg casing, the bearing will be considered partially inside the leg.

20. 1910.272(q)(6).

The preamble of the standard indicates that the hydraulic boot takeups can be used in lieu of a belt alignment monitor. This is primarily designed to ensure proper belt tension; however, if there are features of the device that ensure proper alignment, it will be accepted.

21. 1910.272(q)(7).

(a) Permanent Storage Capacity.

In determining the permanent storage capacity of an employer's workplace, the CO/IH should consider the total storage for the entire complex. This storage would not necessarily have to be serviced by the same house or leg. It can comprise separate facilities that are a part of the same complex, (e.g., an old wooden house with a new concrete facility across the road where employees of the same manager work at both locations). Those facilities or complexes where there are separate houses beyond a given geographical area (e.g., further apart than a square block) would not be considered in the total quantity. Temporary storage such as grain piled outside would also not be counted.

(b) Daily Visual Inspection.

The employer will verify the methodology being used to ascertain proper observation. The employer should also have this as a part of training and the preventive maintenance program and it should be properly documented.

22. 1910.272(q)(8)(ii).

The employer will certify that concentrations are in fact, at least 25 percent below the lower explosive limit (LEL). The employer may use instruments, tests, surveys, or data developed on legs that are identical in size, configuration, speed, etc., to meet the intent of the requirement.

K. Additional Documentation to Support Violations—and Functional Details.

The CO/IH shall obtain the following information to support violations.

1. Type and age of facility.

2. Type of construction including;

(a) A sketch of the workhouse showing names of floors from basement to roof;

(b) Type of fire protection/fire alarm system;

(c) Evacuation plan, with the location of emergency exits including fixed ladders;

(d) Explosion venting capability;

(e) Type of fumigation systems; and any other significant factors.

3. Type of grain receiving, handling and shipping procedures and equipment; number and location of elevator legs with a description of belt type and size, bucket design, belt speed, etc.; grain drying facilities, location, type of fuel, safety devices, etc.

L. Minimum Documentation Necessary for Electrical Hazards

Electrical installation and equipment in grain handling facilities are covered under 1910.301 through 1910.399. Most areas of grain handling facilities where dust accumulations can occur are considered to be hazardous locations, as defined in 1910.307.

1. Hazardous Locations, 1910.307 is a performance-oriented standard which permits the employer to follow any of three options: equipment, wiring methods, and installations of equipment in hazardous (classified) locations must be either intrinsically safe, or approved for the hazardous (classified) location, or safe for the hazardous (classified) location.

(a) If the employer chooses the third option of providing equipment that is "safe for the hazardous location," then the employer must demonstrate that the equipment is of a type and design that will provide protection from Class II hazards (see classifications of hazardous locations in 1910.399); (i.e., that it is at least as safe as equipment following the guidelines contained in the National Electrical Code. (NEC)).

(b) Acceptable evidence might be test data, manufacturer's information, approved equipment markings, or proof of conformity with the requirements of the edition of the NEC if effect at the time that the equipment was installed together with proof that the equipment has not been subsequently changed.

2. Classification of an area as Class II, Division 1 (see 1910.399), will require documentation of the possibility that minimum explosive concentration of dust might occur under normal operating conditions. Such concentrations normally could occur within the bucket elevator enclosure, within scales, in the upper garner, or at open grain transfer points that create airborne dust clouds. They may occur at unventilated loading points or discharge points of equipment.

3. Classification of any area with a grain handling facility will normal, at the very least, be Class II, Division 2, as defined at 1910.399.

4. Some locations within a facility such as rooms or offices that are provided with positive pressure ventilation and self-closing doors, and are so constructed that the room will not allow grain dust to enter during normal operating conditions, are considered as nonhazardous locations.

5. Any electrical citation issued must be adequately documented in the case file. If the citation involves a hazardous location, such documentation must address the following matters to the degree possible:

(a) Type and quantity of accumulated grain dust, the amount likely to be in suspension, the conditions likely to give rise to such suspensions and their extent; the length of time over which such dust deposits have been accumulating together with any evidence of charring of layered dust; the ignition temperature of the dust and the humidity conditions within the facility at the time of the inspection, if known (local atmospheric data may be obtained from the National Weather Service); evidence supporting the possibility that dust deposits or suspensions could be ignited. (See also M of this instruction regarding laboratory support.)

(b) Location and type of potential electrical ignition sources; type and condition of electrical equipment located in the area; evidence that electrical equipment is not safe for the location.

(c) The presence or likelihood of mechanical failure or electrical malfunctions or abnormal operation of machinery or equipment; combinations of factors which could result in explosive conditions.

(d) Degree of confinement at the location.

M. Laboratory Support—Dust Sample Collection.

1. When analysis of grain dust samples is needed, the compliance manager will consult with the DHEC lab to find a certified lab that has the capability to analyze bulk grain dust samples for:

(a) Particle size

(b) Combustible fraction of sample and percent combustible dust.

(c) Minimum explosive concentration.

2. Dust sample collection and preparation for laboratory analysis shall be performed in the following manner:

(a) Collection size of sample will be:

(1) Approximately one-half pint (0.25 liter) concentration of dust to determine particle size, combustibility and moisture content.

(2) Approximately one quart (1.0 liter) for analysis for minimum explosive concentration.

(b) Place the sample in a wide-mouth plastic container with a tight-fitting screw cap. Do not use plastic bags.

(c) Seal the containers with an OSHA Sample Seal. Package the containers securely, using packing materials to cushion them during shipment.

(d) Follow normal OSHA chain-of-custody procedures for all aspects of sample handling.

(e) Indicate on Form OSHA 91A, Item 30, that grain dust tests (the analysis described at L.1. above) are being requested.

N. CO/IH Safety and Health.

CO/IH shall take appropriate precautionary measures for the particular hazards presented in grain handling facilities.

1. Personal Protective Equipment (PPE).

In addition to normal personal protective equipment, it is recommended that CO/IHs conducting inspections in grain handling facilities shall wear natural fiber (e.g., cotton), non-spark-producing clothing. It is recommended that CO/IHs be provided with appropriate flame-retardant clothing.

2. Manlifts.

Care shall be taken that Manlifts and other means of access to upper levels of a facility are used by CO/IHs only when this can be done safely.

(a) CO/IHs shall conduct an in-depth safety evaluation of manlifts, ladders, stairways, etc., in the facility before using them to gain access to upper levels. If they are determined to be unsafe or not in compliance, and no alternative safe means is provided, the CO/IH shall stop the inspection, follow normal enforcement procedures to achieve compliance, and return to finish the remainder of the inspection after abatement of the hazards has been verified.

(b) Extreme caution shall be used on belt manlifts. Belt manlifts, even when totally in compliance with OSHA standards (1910.68), pose a potential fall hazard. CO/IHs shall utilize alternate routes, when available, when they feel their safety is in question. When using a belt manlift, CO/IHs shall not carry

clipboards or other equipment except when it is secured in a bag or container that leave the hands free (e.g., a secured bag with a neck strap).

(c) CO/IHs who are not familiar with the particular type of manlifts used at the facility being inspected shall request specific hazard training and/or instruction from an appropriately knowledgeable employer representative.

(d) If the manlift has not been inspected, the CO/IH shall make a referral to the S.C. Department of Labor, Licensing, and Regulation, Division of Licensing.

(e) If an accident has occurred on the manlift, the OSH and Licensing Divisions will conduct a joint inspection.

APPENDIX A
References

The primary list of references relating to grain handling facilities is contained in Appendix C of 1910.272. The following sources, some of which have been mentioned in this instruction, may prove useful in assessing compliance with the standard.

1. Bureau of Mines Report of Investigation—5753. See preamble to the standard, 52 FR 49601, for description.

2. Classification of Combustible Dust in Accordance with NEC. National Academy of Sciences, Washington, D.C. Available from National Technical Information Service, Springfield, Virginia 22151.

3. Prevention of Grain Elevator and Mill Explosions. National Academy of Sciences, Washington, D.C. Available from National Technical Information Service, Springfield, Virginia 22151.

4. Pneumatic Dust Control in Grain Elevators. National Academy of Sciences, Washington, D.C. Available from National Technical Information Service, Springfield, Virginia 22151.

5. The Country Elevator Safety and Health Guidebook. Part of the "Grain Industry Safety and Health Center—Training Series, "published under USDOL Grant No. E9F5B271. Grain Elevator and Processing Society, P.O. Box, 15026, Commerce Station, Minneapolis, Minnesota 55415-0026.