



OSHA REGIONAL INSTRUCTION

U.S. DEPARTMENT OF LABOR

Occupational Safety and Health Administration

DIRECTIVE NUMBER:CPL 2 02-00-028A | **EFFECTIVE DATE:** October 1, 2019

SUBJECT: Regional Emphasis Program for Grain Handling Facilities

REGIONAL IDENTIFIER: Region VI

ABSTRACT

- Purpose:** This Instruction renews a Regional Emphasis Program (REP) to identify and reduce or eliminate the workplace incidence of hazards which are causing or likely to cause serious injury or death in grain handling facilities.
- Scope:** This Instruction applies to all worksites in Arkansas, Louisiana, Oklahoma, and Texas, and those worksites in New Mexico that are under Federal Jurisdiction.
- References:** OSHA Instruction CPL 02-00-025
OSHA Instruction CPL 02-00-051
OSHA Instruction CPL 02-00-094
OSHA Instruction CPL 02-00-163
OSHA Instruction CPL 02-01-004
OSHA Instruction CPL 03-00-008
OSHA Instruction CPL 04-00-002
OSHA 29 CFR 1910.272 Grain Handling Facilities Standard
NIOSH Booklet "Safe Grain & Silage Handling"
Purdue University "2018 Summary of U.S. Agricultural Confined Space – Related Injuries and Fatalities"
- Cancellations:** Region VI Regional Notice CPL 2 02-00-028 dated October 1, 2018, Regional Emphasis Program for Grain Handling Facilities.
- State Impact:** Region VI 21(d) Consultation Project Offices in Arkansas, Louisiana, Oklahoma, and Texas will provide outreach, consultation services, and training to affected employers as requested.

Action Offices: Region VI Area Offices
Region VI Consultation Project Offices
Dallas Regional Office

Information Offices: New Mexico Occupational Health and Safety Bureau

Originating Office: Dallas Regional Office.

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By and Under the Authority of:

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- I. **Purpose.** This Instruction renews a Regional Emphasis Program (REP) for the purpose of conducting inspections to identify safety and health hazards in the grain handling industry. The targeted industries are:

NAICS	Description
311211	Flour and other Grain milling
311212	Rice milling
311119	Other animal food manufacturing (except slaughtering)
311223	Cottonseed oil milling
493130	Farm products warehousing & storage
424510	Grain & field bean merchants-wholesalers
422590	Other farm-product raw material wholesalers

Note: For purposes of this REP, NAICS 311223 and 422590 are considered grain handling facilities. These NAICS are not covered under 29 CFR 1910.272 unless a facility has a grain elevator on-site which receives, handles, stores, and ships (including transfer to another part of the facility) a bulk, raw agricultural commodity. If so, the standard applies to the grain elevator. 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 (i.e., a bulk, raw, agricultural commodity).

Note: Agricultural operations are not covered in Part 1910; therefore 1910.272 does not apply to on-farm storage or feed lots.

- II. **Scope.** This instruction applies to all grain handling worksites in Arkansas, Louisiana, Oklahoma, and Texas, and those facilities in New Mexico that are under Federal Jurisdiction.

III. **References.**

- A. OSHA Instruction CPL 02-00-025, Scheduling System for Programmed Inspections, January 4, 1995, or current update.
- B. OSHA Instruction CPL 02-00-051, Enforcement Exemptions and Limitations under the Appropriations Act, May 28, 1998, or current update.
- C. OSHA Instruction CPL 02-00-094, OSHA Response to Significant Events of Potentially Catastrophic Consequences, July 22, 1991, or current update.
- D. OSHA Instruction CPL 02-00-163, Field Operations Manual (FOM), September 13, 2019, or current update.
- E. OSHA Instruction CPL 02-01-004, Inspection of Grain Handling Facilities, 29 CFR 1910.272, November 8, 1996, or current update.
- F. OSHA Instruction CPL 03-00-008, Combustible Dust National Emphasis Program, March 11, 2008, or current update.

- G. OSHA Instruction CPL 04-00-002, Procedures for Approval of Local Emphasis Programs (LEPs), November 13, 2018, or current update.
- H. OSHA 29 CFR 1910.272, Grain Handling Facilities.
- I. NIOSH Booklet "Safe Grain and Silage Handling," October 1995.
- J. 2017 Summary of U.S. Agricultural Confined Space-Related Injuries and Fatalities; Purdue University (June 2018)

IV. **Expiration.** This Instruction expires on December 31, 2021, but may be renewed as necessary.

V. **Background.**

The grain handling industry is a high hazard industry where workers can be exposed to numerous serious and life threatening hazards. These hazards include: fires and explosions from grain dust accumulation, suffocation from engulfment and entrapment in grain storage structures, falls from heights and crushing injuries and amputations from grain handling equipment.

Suffocation is a leading cause of death in grain storage bins or structures. According to the Purdue University "2018 Summary of U.S. Agricultural Confined Space-Related Injuries and Fatalities" no less than 61 fatal and non-fatal cases occurred in 2018. Of these cases 50% were fatal and directly related to grain entrapments. The number of fatalities has increased to 30 incidents in 2018 from 23 incidents in 2017. Due to increased publicity on grain entrapment cases and independent research conducted by National Public Radio (NPR), 4 additional cases were entered in the database. This highlights the point that the PACSID is a fluid database that continues to be updated as new cases from previous years are documented and entered.

Suffocation can occur when a worker becomes buried (engulfed) by grain as they walk on moving grain or attempt to clear grain build up on the inside of a bin. Moving grain acts like "quicksand" and can bury a worker in seconds. "Bridged" grain and vertical piles of stored grain can also collapse unexpectedly if a worker stands on or near it. The behavior and weight of the grain make it extremely difficult for a worker to get out of it without assistance. OSHA has sent notification letters to thousands of grain elevator operators warning the employers to not allow workers to enter grain storage facilities without proper equipment, precautions (such as turning off and locking/tagging out all equipment used so that the grain is not being emptied or moving into the bin) and training.

Grain dust explosions are often severe, involving loss of life and substantial property damage. Over the last 35 years, there have been over 500 explosions in grain handling facilities across the United States, which have killed more than 180 people and injured more than 675. Grain dust is the main source of fuel for explosions in grain handling.

Grain dust is highly combustible and can burn or explode if enough becomes airborne or accumulates on a surface and finds an ignition source (such as hot bearing, overheated motor, misaligned conveyor belt, welding, cutting, and brazing). OSHA standards require that both grain dust and ignition sources must be controlled in grain elevators to prevent these often deadly explosions.

Falls from height can occur from many walking/working surfaces throughout a grain handling facility. Examples of such surfaces include (but are not limited to) floors, machinery, structures, roofs, skylights, unguarded holes, wall and floor openings, ladders, unguarded catwalks, platforms and man lifts. Falls can also occur as workers move from the vertical exterior ladders on grain bins to the bin roof or through a bin entrance.

Mechanical equipment within grain storage structures, such as augers and conveyors, present serious entanglement and amputation hazards. Workers can easily get their limbs caught in improperly guarded moving parts of such mechanical equipment.

Storage structures can also develop hazardous atmospheres due to gases given off from spoiling grain or fumigation. Workers may be exposed to unhealthy levels of airborne contaminants, including molds, chemical fumigants (toxic chemicals), and gases associated with decaying and fermenting silage. Fumigants are commonly used for insect control on stored grain and many have inadequate warning properties. Exposure to fumigants may cause permanent central nervous system damage, heart and vascular disease, and lung edema as well as cancer. These gases may result in a worker passing out and falling into the grain, thus becoming engulfed and suffocating or otherwise injuring themselves.

OSHA will employ a number of tools to address these issues, including enforcement, outreach, training, onsite consultation, partnerships, alliances, and the Voluntary Protection Program (VPP). Between January 2016 and September 2019, Region VI investigated 16 fatality events and seven (7) severe injury reports as a result of employer-reported referrals.

In summary, there is evidence that workers in the grain industry are at increased risk of suffering a work-related injury, and that the extent of the problem may be far greater than the elevated risk reported by employers and seen in the BLS data.

Number and rate of non-fatal occupational injuries and illnesses by selected industry, All U.S., private industry, (Incidence rate per ten thousand full time workers)								
	2016				2017			
Characteristic	Private industry		Grain Milling		Private industry		Grain Milling	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Injuries								
Total cases	2857.4	2.9	2.0	3.0	2811.5	2.8	2.3	3.5
Cases with days away from work job transfer	1547.8	1.6	1.1	1.7	1528.0	1.5	1.4	2.1
Cases with days away from work	892.3	0.9	.6	.9	882.7	.9	.8	1.2
Cases with job transfer or restriction	655.6	0.7	.5	.8	645.3	0.7	.6	.9
Other recordable cases	1309.5	1.3	.9	1.3	1283.5	1.3	.9	1.4
Illnesses								
Total cases	137.1	14.1	5.7	16.8	126.4	12.8	.2	34.2
Illness categories								
Skin disorders	21.8	2.2	.1	-	18.5	1.9	-	-
Respiratory	11.1	1.1	-	4.1	10.4	1.1	-	-
Poisoning	2.0	0.2	(-7-)	-	1.7	0.2	-	-
Hearing loss	16.5	1.7	.1	8.0	14	1.4	.2	24.5
All other illness	86.2	8.9	(-7-)	4.5	81.8	8.3	(-7-)	7.4

BLS data also indicates that the workers in the grain industry have elevated injury/illness rates compared to private industry (2017 total cases grain incidence rate exceeded the rate for all private industry).

VI. Enforcement.

A. Hazards: Inspections conducted under this REP will:

1. Include an evaluation of the employer's efforts at adopting protective measures and its efforts toward the abatement of hazards relating to grain handling hazards, especially combustible dust and engulfment hazards.
2. Address all aspects of grain handling work to include, but not limited to, a review of related hazards such as: hazardous energy control, forklift operations, grain entry program and procedures, housekeeping, fall protection, personal protective equipment, confined space entry, machine guarding, and safety-related practices.

B. Scheduling of Inspections

1. Establishment List: The Area Director will develop a list of all known grain handling facilities within the Area Office jurisdiction in the targeted NAICS codes listed in the purpose section. The list will be developed using any available sources of information including, but not limited to, the following:
 - a) The Grain Handling mail out list provided by the Directorate of Enforcement Programs,
 - b) Lists obtained from OSHA's Office of Statistical Analysis,
 - c) Agricultural department licensing databases,
 - d) Railroad website directories of grain elevators,
 - e) Commercial directories,
 - f) Telephone listings from phonebooks and/or websites, and
 - g) Local knowledge.
2. Deletion Criteria: Establishments with ten or fewer employees will be included in this program unless the establishment's NAICS is listed in the most recent Appendix A of OSHA Instruction CPL 02-00-51, Exemptions and Limitations under the Current Appropriations Act. Establishments in exempt NAICS will be deleted from the establishment list.
3. Inspection Cycle: Inspection cycles will be created as follows:
 - a) If the establishment list contains fewer than ten establishments, the establishment list will be the inspection cycle.

- b) If the establishment list contains more than ten establishments, the establishment list will be placed in alphabetical order by establishment name and numbered sequentially. The appropriate random number tables contained in Appendix C of CPL 02-00-025 (Scheduling Systems for Programmed Inspections) will be applied to create the inspection list which will then be divided into inspection cycles each containing ten establishments, if possible.
- 4. New Establishments: Establishments identified after the creation of the inspection list will be added sequentially to the end of the list.
- 5. Inspection Order: Establishments in an inspection cycle may be inspected in any order which makes efficient use of available Area Office resources. Once a cycle is begun, all establishments in the cycle are to be inspected before a new cycle is initiated except:
 - a. Carryovers will be allowed in accordance with OSHA Instruction CPL 02-00-025.
 - b. An establishment that has had a comprehensive safety and health inspection within the past 24 months will be moved to the next inspection cycle.
 - c. The Area Office shall document the basis for any changes to an inspection cycle.
- C. Scope of REP Inspection: The inspections conducted under this REP will be comprehensive in nature. The CSHO will evaluate all on-site employers.
- D. Citations: Citations for violations shall be issued in accordance with the FOM.
- E. Interface with Unprogrammed Activity: Reports of imminent danger, fatalities, catastrophes, complaints, and referrals shall be scheduled as unprogrammed inspections, and shall be inspected in accordance with the applicable provisions of the FOM. This does not, however, limit the Area Office's authority to conduct an inspection under this REP of any establishment selected for inspection pursuant to this REP. If an unprogrammed inspection is to be conducted at a facility that is also included in the current inspection cycle under this REP, the Area Office may conduct the inspections concurrently.
- F. Inspection Resources: All OSHA personnel participating in this REP must be familiar with the policies and procedures described in this instruction.
- G. CSHO Personal Protective Equipment (PPE). CSHOs will use personal protective equipment suitable for the targeted industry. PPE will include, at a

minimum, respiratory protection (as necessary), a hard hat, safety glasses with side shields, safety shoes/boots (with metatarsal guards as necessary), hearing protection, and high visibility apparel/vest. If a combustible dust hazard exists, CSHOs shall wear non-spark-producing clothing such as natural fiber (e.g., cotton), and the use of flame-resistant clothing (FRC) is recommended.

- H. Equipment: When evaluating combustible dust hazards, the CSHO shall ensure that any equipment used is intrinsically safe and non-spark producing. Cameras may be used to obtain photographs in areas where there are no combustible dust atmospheres. Photographs of areas containing combustible dust atmospheres shall only be taken from an area which does not contain combustible dust atmospheres using the zoom feature as necessary.
- I. Relationship to Other Programs: Inspections conducted under this REP will:
 - 1. Comply with the guidelines established in OSHA Instructions CPL 02-01-004, Inspection of Grain Handling Facilities.
 - 2. Comply with the guidelines established in OSHA Instruction CPL 03-00-008, Combustible Dust National Emphasis Program, if establishment contains combustible dust.

VII. Recording in OIS.

- A. Enforcement Inspections: Enforcement inspections completed under this initiative will be coded:

In OIS in the Inspection Type sub-tab:

- 1. Initiating Type will be coded “Programmed Planned” with the following exception. Any inspections conducted as a result of a complaint, referral, or fatality/catastrophe will be coded as the appropriate “unprogrammed” activity.
 - 2. Local Emphasis Program will be coded **GRAIN** for all programmed and unprogrammed inspections.
 - 3. Additional Codes will be coded with any applicable additional codes.
- B. Enforcement Interventions: Enforcement Interventions completed under this initiative, including partnerships, alliances, Voluntary Protection Programs, and other interventions, will be coded:

In OIS in the Task sub-tab, Task Details, Emphasis Areas as follows:

- 1. Local Emphasis Programs will be coded **GRAIN**.

2. Other Emphasis Areas will include any applicable additional codes and the codes specific to the agriculture or general industry activity covered by the inspection per VII.A.4.
- C. Consultation Visits: Consultation Visits completed under this initiative will be coded:
1. In OIS on the Request Form CONS-20:
 - a) Local Emphasis will be coded **GRAIN**.
 - b) Field 18 will include any applicable additional codes and the codes specific to the agriculture or general industry activity covered by the inspection per VII.A.4.
 2. In OIS on the Visit Form CONS-30:
 - a) Local Emphasis will be coded **GRAIN**.
 - b) Field 22 will include any applicable additional codes and the codes specific to the agriculture or general industry activity covered by the inspection per VII.A.4.
- D. Consultation Interventions: Consultation Interventions completed under this initiative will be coded:
- In OIS on the Consultation Intervention Form CONS-66:
1. Local Emphasis will be coded **GRAIN**.
 2. Field 15 will include any applicable additional codes and the codes specific to the agriculture or general industry activity covered by the inspection per VII.A.4.
- E. Area Offices, Consultation Projects, and the Regional Office shall periodically check their OIS to verify accuracy of the data for the initiative.

VIII. Outreach.

All REPs must contain an outreach component that must be ongoing throughout the effective period of the program. These outreach efforts should be coordinated with or include the consultation program for that area. The method of outreach is at the Area Directors discretion and can consist of one or more of the following components.

1. Broadcast mail-outs or program information
2. Stakeholder meetings

3. Targeted training sessions
4. Presentations to the affected group(s)

IX. Partnerships and Alliances.

In the event outreach efforts result in the interest in developing an alliance or partnership, the Area Director will ensure that these efforts conform to current National and Regional Policy.

X. Evaluation.

The regional office will evaluate the impact of the REP at the midpoint of the program as well as at the expiration. Information and data from OIS along with input from the Area Directors will be used in program reports. Elements to be considered in the program reports are contained in OSHA Instruction CPL 04-00-002.