

MNOSHA's Focus: Top Four Construction Hazards

Minnesota's Highway & Heavy Construction February 2016

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MNOSHA's Focus: Top Four Construction Hazards

1. Falls
2. Electrocution
3. Struck-by
4. Caught-in-between

MNOSHA's Focus: Top Four Construction Hazards



MNOSHA's Focus: Top Four Construction Hazards

Federal OSHA & Focus Four

- 1. 90% of all fatalities**
- 2. 85% of all citations**
- 3. 90% of all dollars applied as fines**

MNOSHA Compliance Fatality Investigations FFY 2011 - 2015

During the period October 1, 2010 – September 30, 2015, the annual average number of fatalities under Minnesota OSHA jurisdiction was 18.

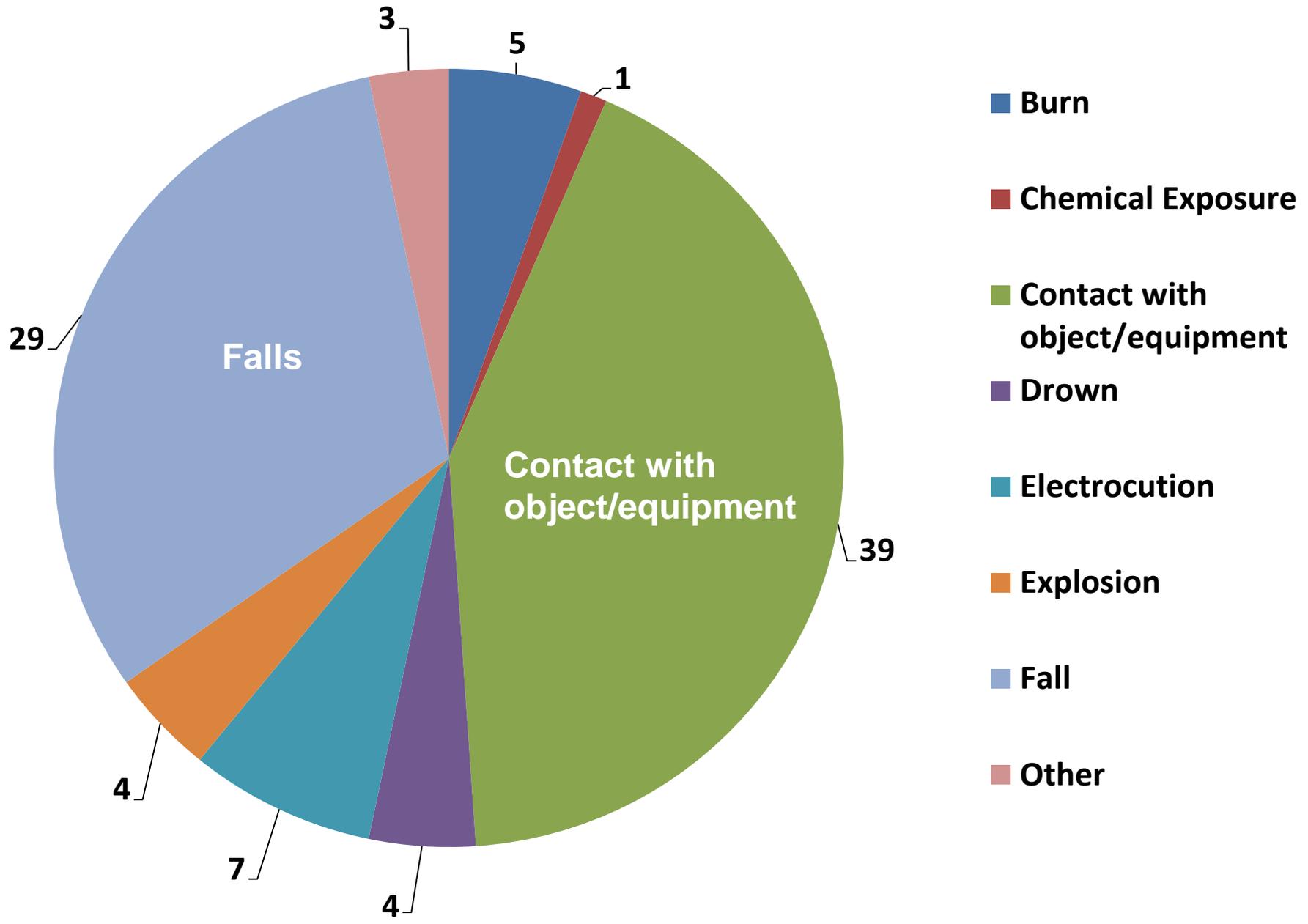
The most common types of workplace fatalities were:

- Contact with an object or equipment: Average of 8 workers each year**
- Falls: Average of 6 workers each year**
- Electrocution: Average of 1.4 workers each year**

Minnesota OSHA's Most Frequently Cited Standards in Construction Federal Fiscal Year 2015

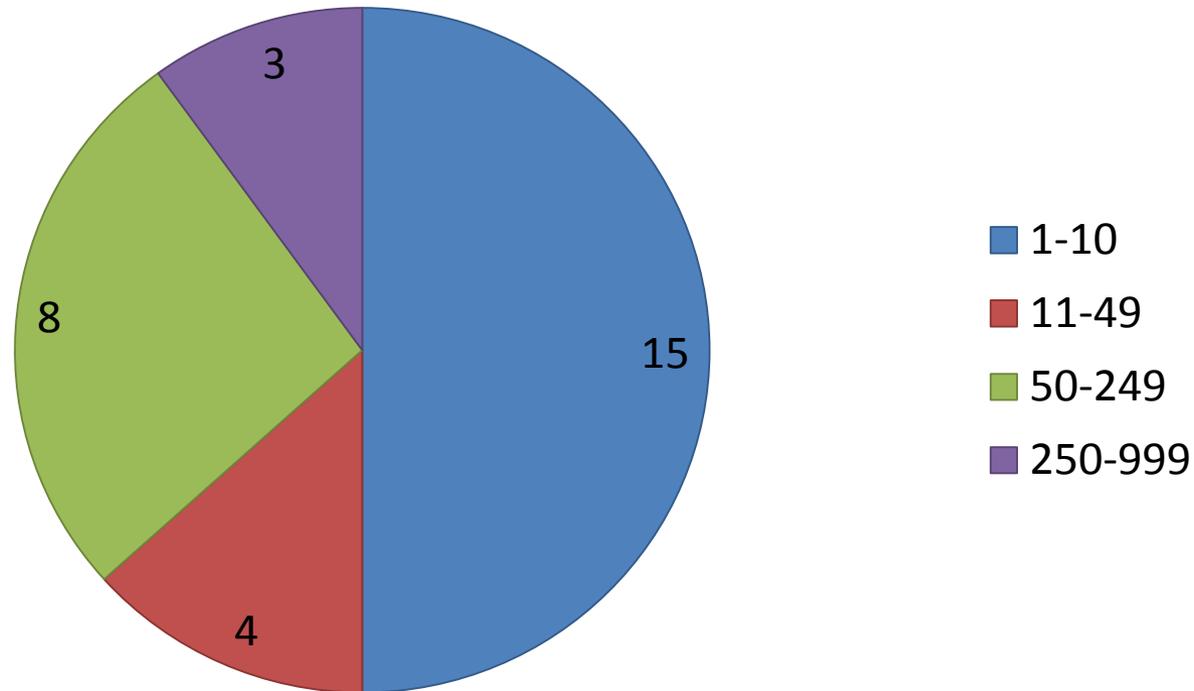
STANDARD	DESCRIPTION	FREQUENCY
1926.501	Fall protection	275
MN Statutes 182.653 subd. 8	A Workplace Accident and Injury Reduction (AWAIR) program	70
1926.451	General requirements for scaffolds	61
1926.1053	Ladders	58
MN Rules 5207.1100	Fall protection on elevating work platforms	54
1926.651	Specific requirements for excavations	43
1926.652	Protective systems for excavations	41
1926.405	Electrical wiring, components & equipment	39
1926.100	Head Protection	28
MN Rules 5206.0700	Employee Right-To-Know training	27

Cause of all Fatalities FFY 2011 - 2015



MNOSHA Construction Fatalities by Size of Employer Size FFY 2011-2015

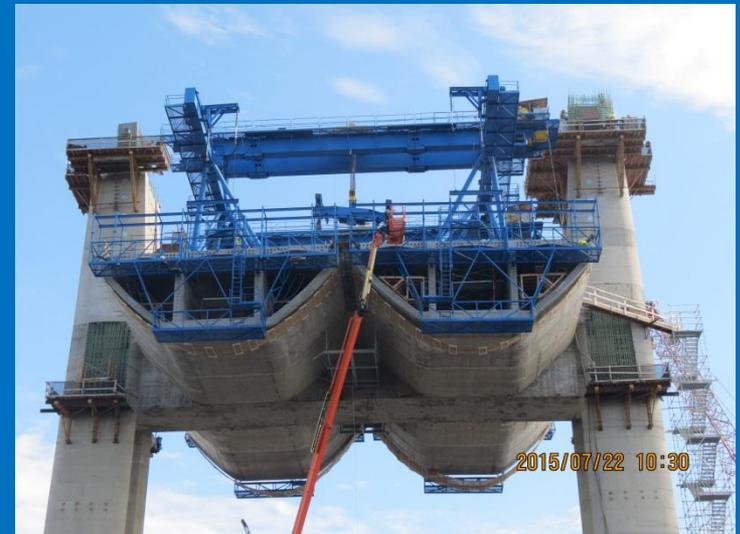
Number of Employees



Fall Hazards in Highway and Heavy Construction

Falls are among the most common causes of serious work related injuries and deaths. Employers must set up the work place to prevent employees from falling off of:

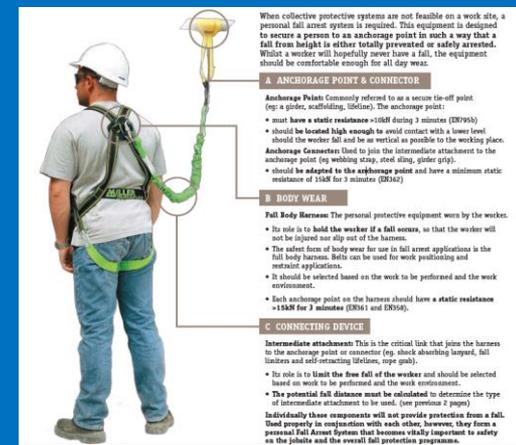
- overhead platforms,
- elevated work stations
- or from equipment
- or into holes in the deck and vertical openings.



Fall Protection in Highway & Heavy Construction

Each employee working at a height of 6 feet (1.8m) or more above lower levels shall be protected from falling by:

- guardrail systems,
- safety net systems,
- or personal fall arrest systems.



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Fall Protection in Highway & Heavy Construction



Fall Protection in Highway & Heavy Construction



Fall Protection in Highway & Heavy Construction

BRIEF DESCRIPTION OF ACCIDENT

A derrick worker was working on the derrick board of a rig. After taking a break, the derrick worker climbed back up to the derrick board and did not attach his fall protection device after unhooking from the climb assist. The worker grabbed the first stand of pipe with the tail rope which helped keep his balance as the elevators were being sent up to attach to the pipe. When he released the tail rope, he lost his balance and fell 90 ft. to the rig floor, where he was fatally injured.



Fall Protection in Highway & Heavy Construction

ACCIDENT PREVENTION

1. Ensure that all employees that work at elevations above the ground or adjacent surfaces such as a rig floor, are protected at all times from falling by guardrail systems, safety net systems, or personal fall arrest systems (PFAS). See 29 CFR 1910.23.
2. Evaluate the worksite to identify jobs and locations where workers might be exposed to fall hazards.
3. Instruct all workers in the hazards of working at elevations and how to properly use personal fall arrest systems (PFAS).
4. Implement work rules which instruct workers that they must use fall protection equipment (e.g., ladder climbing assist devices; PFAS, etc.) when they are working at elevations.
5. Inspect all fall-related equipment (guardrails, ladders, PFAS) to make sure that they are not damaged or deteriorated.

Electrocution/Caught in-between Hazards in Highway & Heavy



Electrical Hazards in Highway & Heavy Construction



Electrical Hazards in Highway & Heavy Construction

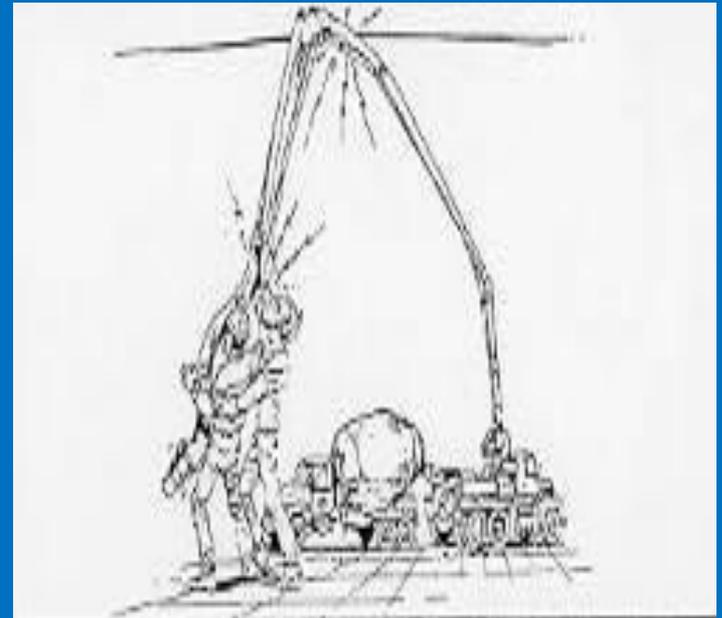


Electrocution Hazards in Highway and Heavy Construction



Electrical Hazards in Highway & Heavy Construction

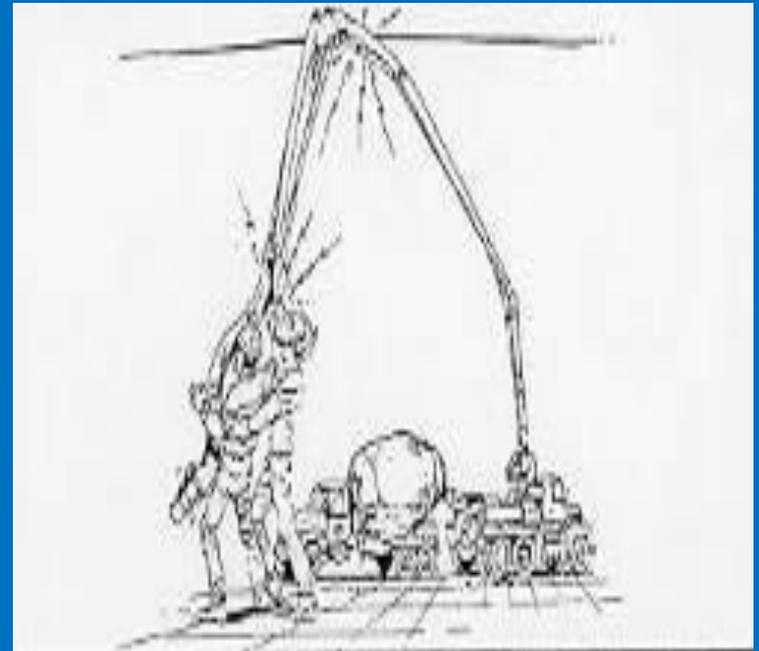
Two employees were spreading concrete as it was being delivered by 1 concrete pumper truck boom. The truck was parked across the street from the worksite. Overhead power lines ran perpendicular to the boom on the pumper truck. One employee was moving the hose (elephant trunk) to pour the concrete when the boom of the pumper truck came in contact with the overhead power line carrying 7,620 volts. One employee received a fatal electric shock and fell on the other employee who was assisting him. The second employee received massive electrical shock and burns. * Safety training requirement was not being carried out at time of accident.



Electrical Hazards in Highway & Heavy Construction

INSPECTION RESULTS

OSHA cited the employer for not instructing each employee to recognize and avoid unsafe conditions which apply to the work and work areas. Employer was also cited for operating equipment within ten feet of an energized electrical, ungrounded transmission lines rated 50 kV or less and not erecting insulating barriers.



Struck-by Hazards in Highway & Heavy Construction



Struck-by Hazards in Highway & Heavy Construction



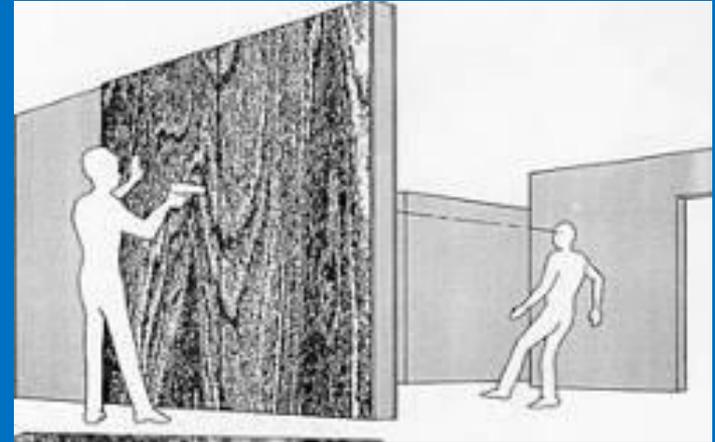
Struck-by Hazards in Highway & Heavy Construction



Struck-by Hazards in Highway & Heavy Construction

ACCIDENT DESCRIPTION

A carpenter apprentice was killed when he was struck in the head by a nail that was fired from a powder actuated tool. The tool operator, while attempting to anchor a plywood form in preparation for pouring a concrete wall, fired the gun causing the nail to pass through the hollow wall. The nail travelled some twenty seven feet before striking the victim.



INSPECTION RESULTS

The tool operator had never received training in the proper use of the tool, and none of the employees in the area were wearing personal protective equipment.

Caught-in-Between Hazards in Highway & Heavy Construction



Caught-in-Between Hazards in Highway & Heavy Construction



Caught-in-Between Hazards in Highway & Heavy Construction



Caught-in-Between Hazards in Highway & Heavy Construction



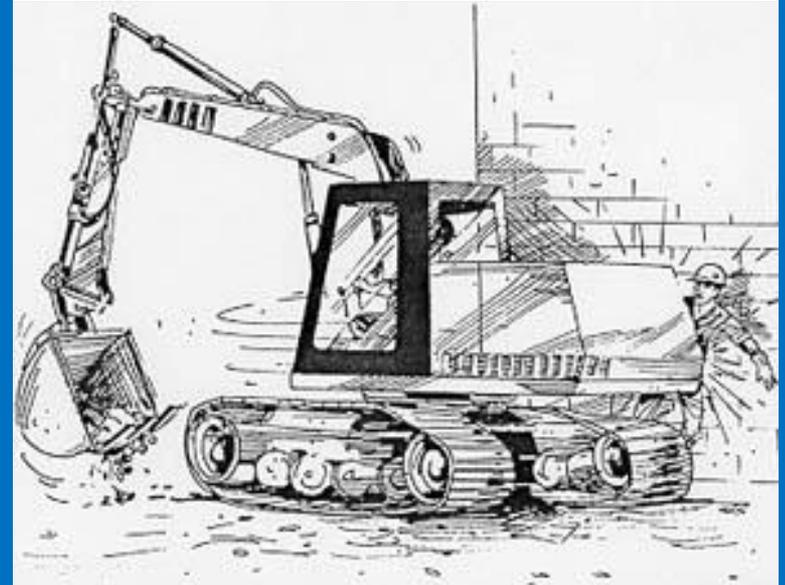
Barricade Swing Radius



Barricade Swing Radius

BRIEF DESCRIPTION OF ACCIDENT

The contractor was operating a backhoe when an employee attempted to walk between the swinging superstructure of the backhoe and a concrete wall. As the employee approached the backhoe from the operator's blind side, the superstructure hit the victim crushing him against the wall.



Caught-in-Between Hazards in Highway & Heavy Construction

A truck driver was crushed and killed between the frame and dump box of a dump truck. Apparently a safety "overtravel" cable attached between the truck frame and the dump box malfunctioned by catching on a protruding nut of an air brake cylinder. This prevented the dump box from being fully raised, halting its progress at a point where about 20 inches of space remained between it and the truck frame. The employee, apparently assuming that releasing the cable would allow the dump box to continue up-ward, reached between the rear dual wheels and over the frame, and disengaged the cable with his right hand. The dump box then dropped suddenly, crushing his head. The employee had not received training or instruction in proper operating procedures and was not made aware of all potential hazards in his work.



Caught-in-Between Hazards in Highway & Heavy Construction

INSPECTION RESULTS

Following its inspection, OSHA issued one citation for one alleged serious violation of its construction standards. Had the required training been provided to the employee, this fatality might have been prevented.

ACCIDENT PREVENTION RECOMMENDATIONS

Employees must be instructed to recognize and avoid unsafe conditions associated with their work (29 CFR 1926.21(b)(2)).



Caught-in-Between Hazards in Highway & Heavy Construction



Caught-in-Between Hazards in Highway & Heavy Construction



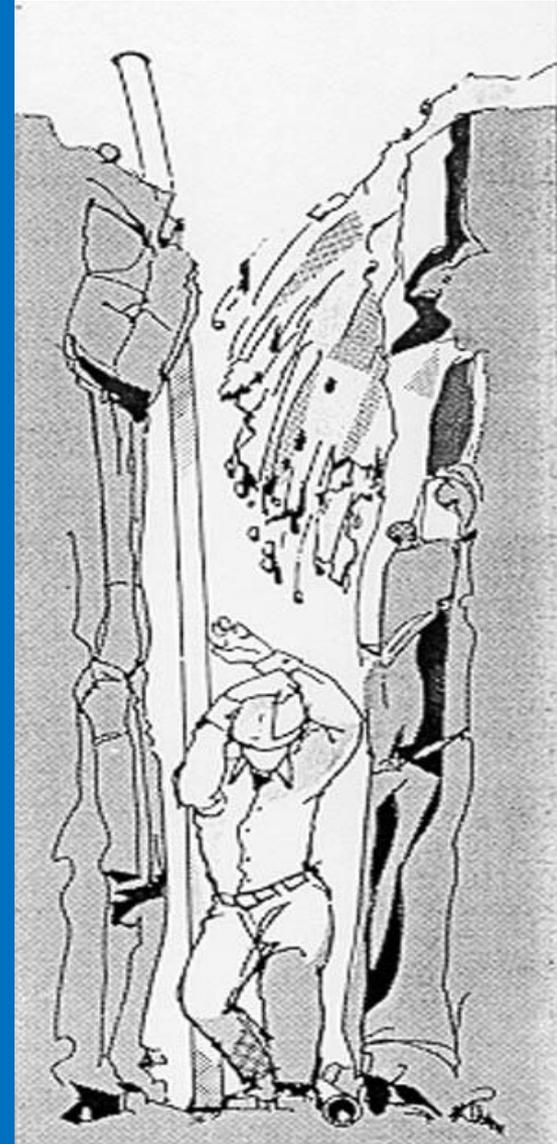
Caught-in-Between Hazards in Highway & Heavy Construction



Caught in between Highway & Heavy Construction

BRIEF DESCRIPTION OF ACCIDENT

An employee was installing a small diameter pipe in a trench 3 feet wide, 12-15 feet deep and 90 feet long. The trench was not shored or sloped nor was there a box or shield to protect the employee. Further, there was evidence of a previous cave-in. The employee apparently reentered the trench, and a second cave-in occurred, burying him. He was found face down in the bottom of the trench.



QUESTIONS??

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