

# Tragedy in the Trenches



# Welcome!

- ▶ Background
- ▶ “The Rules”
- ▶ Case studies
- ▶ Hazards
- ▶ Controls
- ▶ Resources



# Polling Questions

1. What industry do you work in?
2. Do you have any supervisory responsibilities?
3. Do you have any oversight responsibilities for trenching/excavating activities?
4. Have you ever personally violated a safety policy, procedure, standard, rule, or regulation?





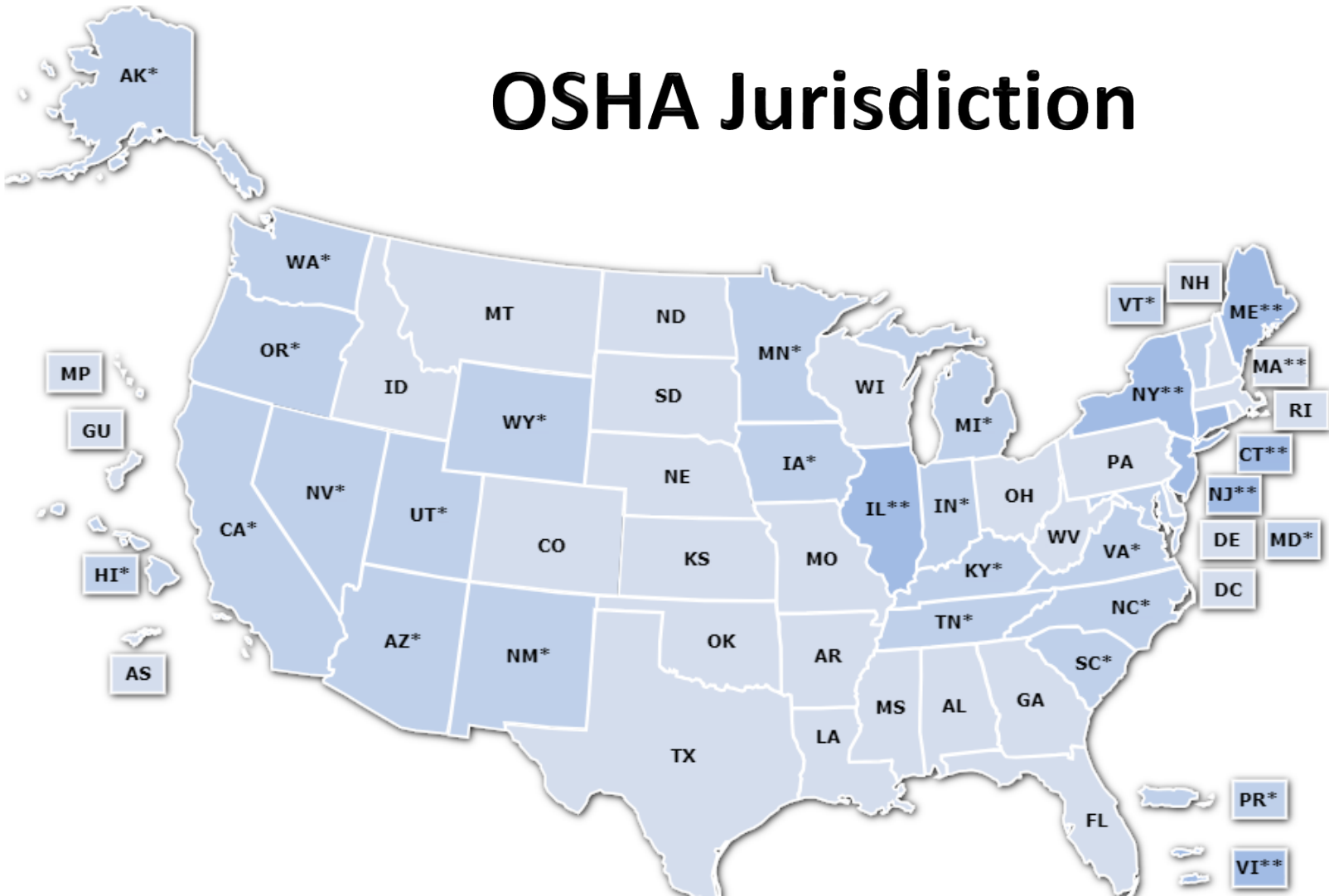
**BACKGROUND**

**Excavation and trenching work poses a higher fatality rate (112%) than the rate for general construction work.**

**Cave-ins are the most dangerous and frequently cause worker fatalities in excavation-related accidents.**

**Other potential hazards include falling loads, falls, incidents involving mobile equipment, and hazardous atmospheres.**

# OSHA Jurisdiction



\*This state has an OSHA-approved State Plan covering private and state and local government workplaces

\*\*This state has an OSHA-approved State Plan that covers state and local government workers only

<https://www.osha.gov/enforcement/toppenalties/bystate>



**REGULATIONS | SAFETY & COMPLIANCE**

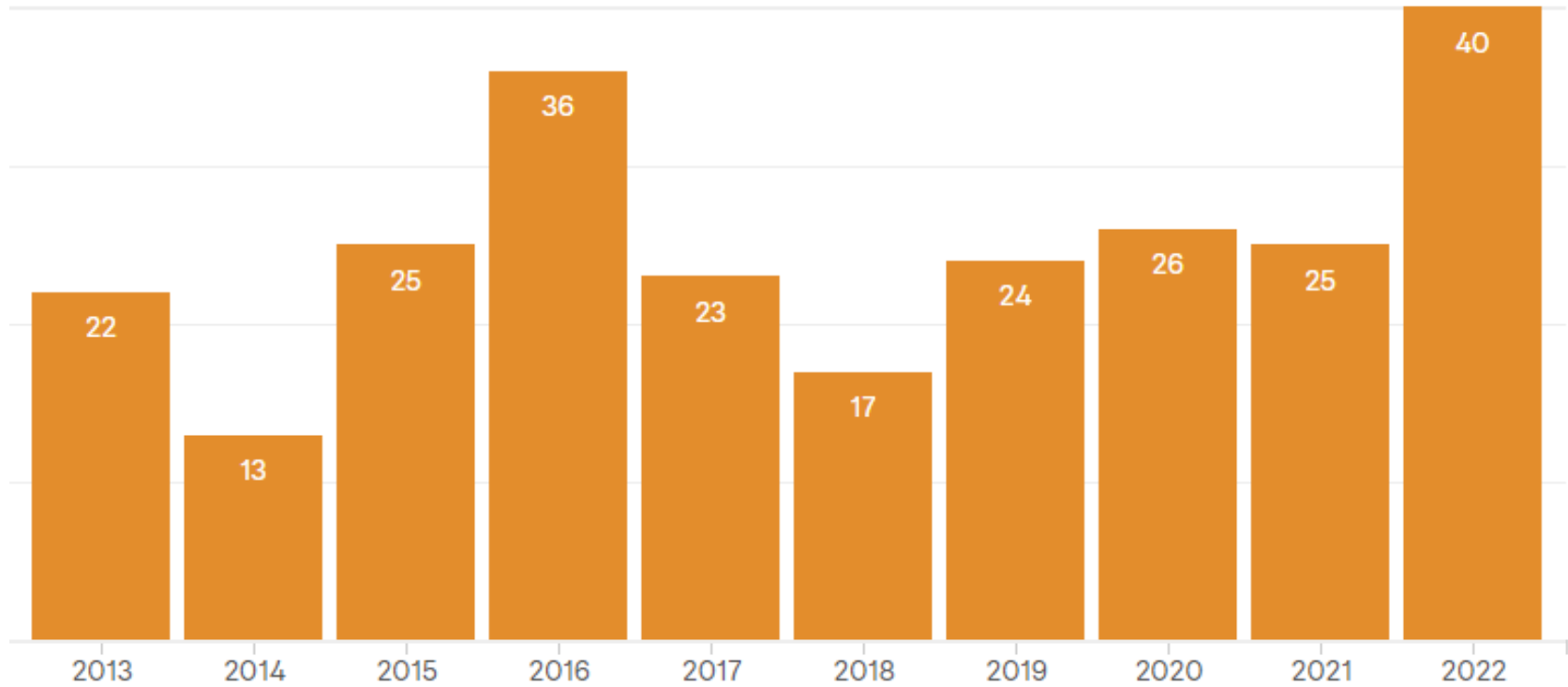
# OSHA Reports 39 Trench Deaths in 2022 – More Than Double 2021 Toll



Don McCloud

Jan 5, 2023 | Updated Aug 9, 2023

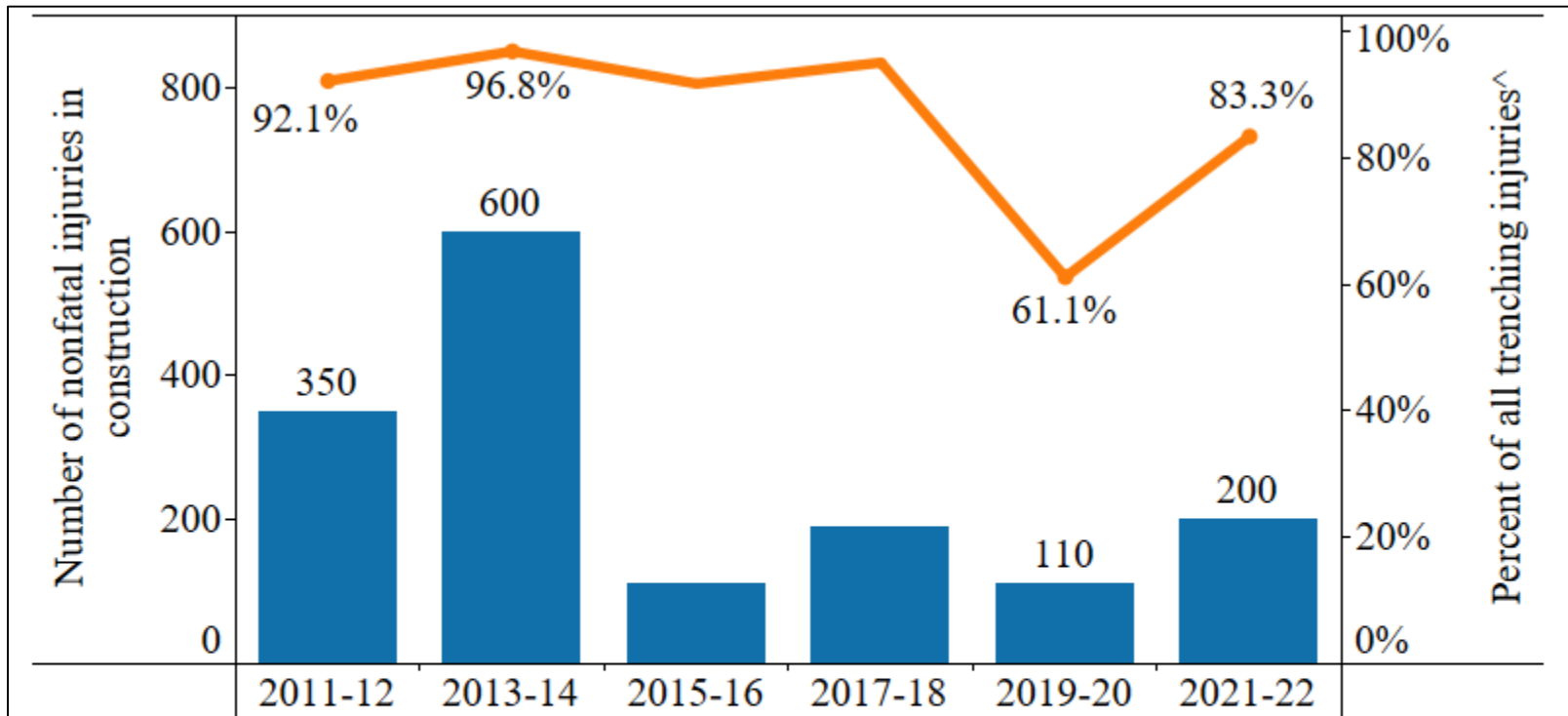
# Deaths from Trench Collapses 2013 – 2022



*Reference: Bureau of Labor Statistics and CPWR*



# Nonfatal Trenching Injuries 2011 – 2022

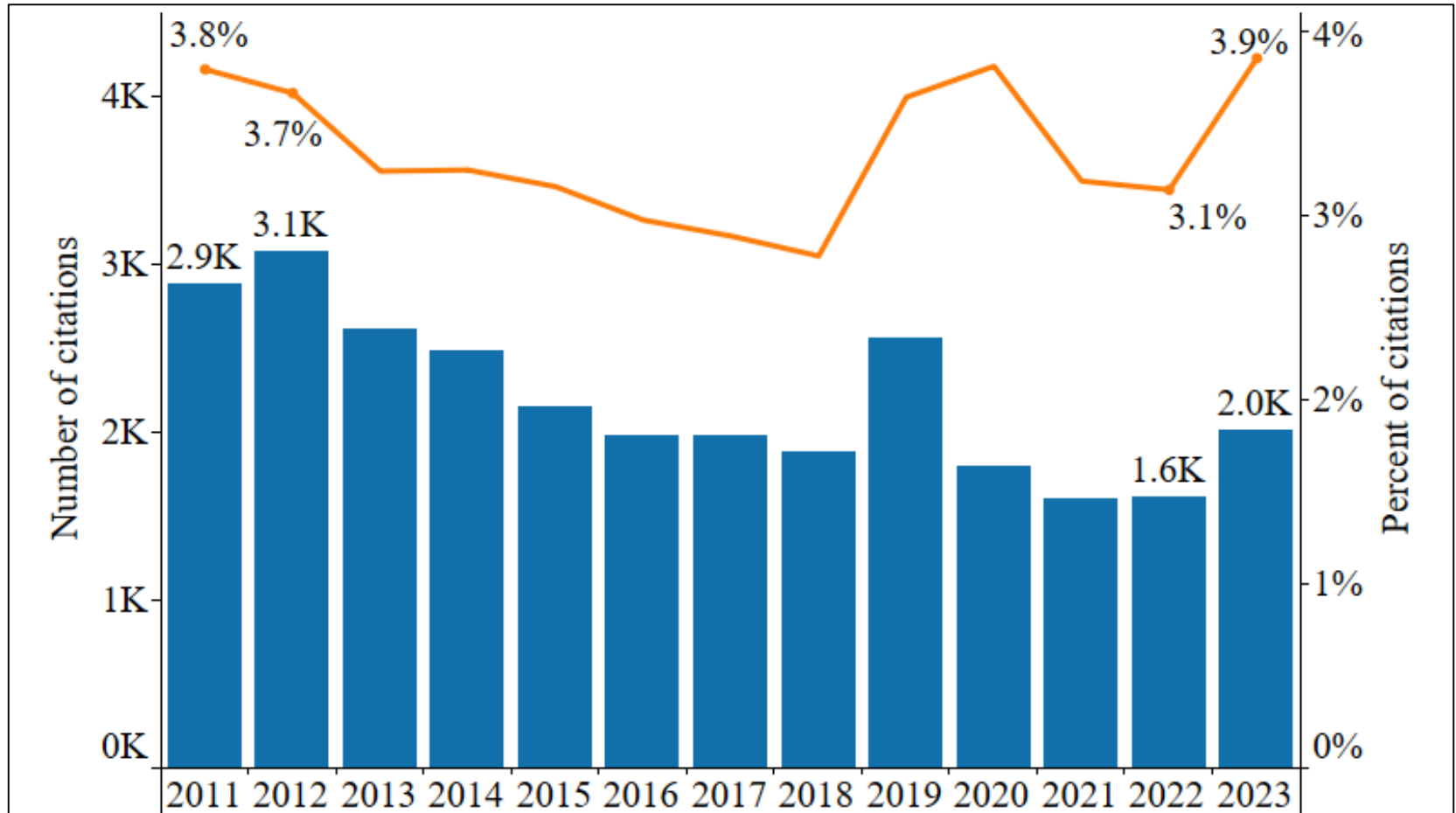


**Source:** U.S. Bureau of Labor Statistics, 2011-2022 Survey of Occupational Injuries and Illnesses. Calculations by the CPWR Data Center.

\*Sum is shown for each two-year period to produce comparable statistics following BLS data change to biennial estimates for 2021-2022.

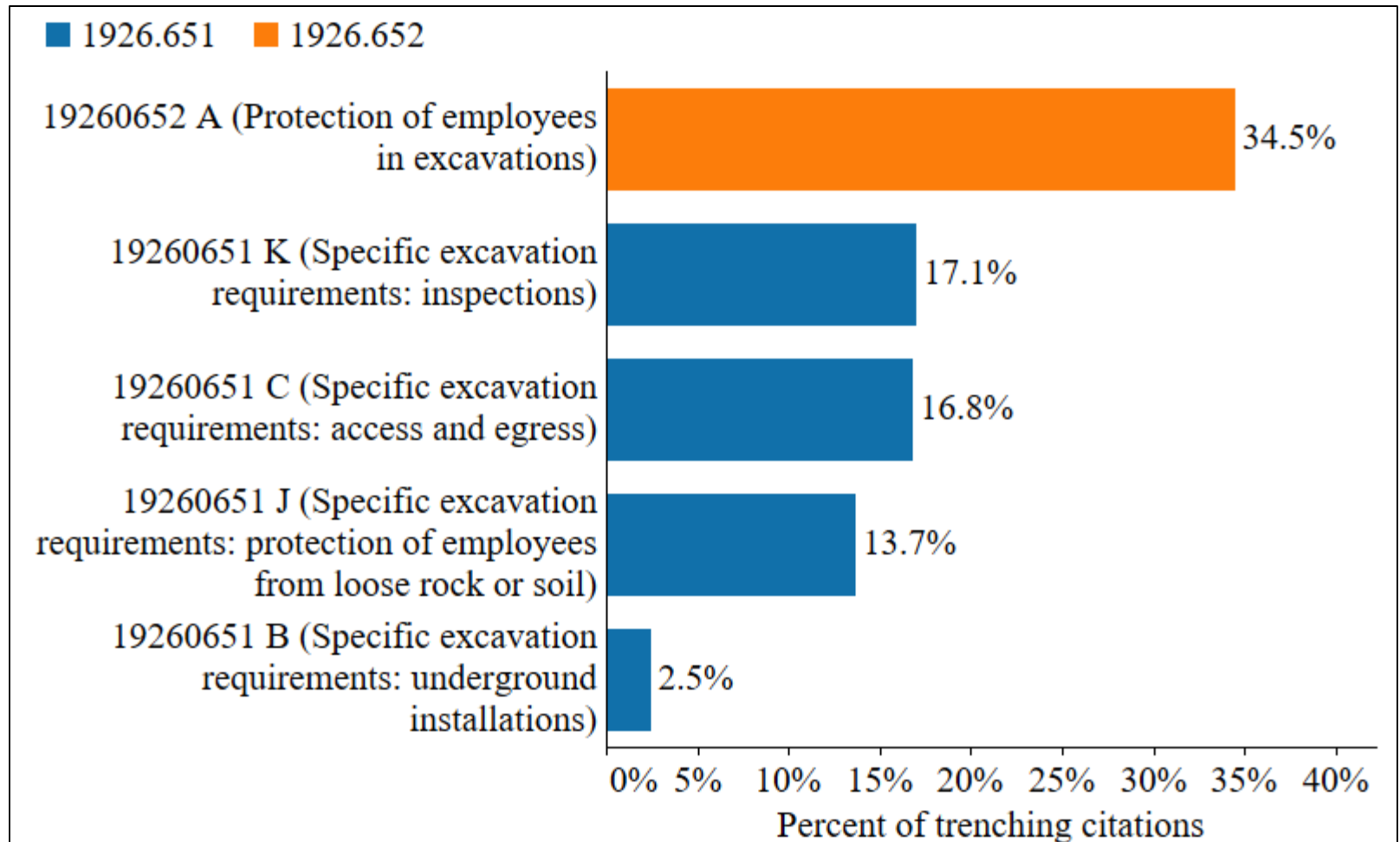
<sup>^</sup>Calculated as Number of trenching injuries in construction / Number of trenching injuries in all industries.

# OSHA Trenching Citations in Construction



**Source:** 2011-2023 Department of Labor OSHA Enforcement Data.  
Calculations by the CPWR Data Center.

# Top 5 Cited Trenching Standards in Construction



**Source:** 2011-2023 Department of Labor OSHA Enforcement Data.  
Calculations by the CPWR Data Center.

# Trench Fatalities – 2022

Date of Incident ▼	City ^	Select State ⇅	Hazard Description ⇅
2022	City	Select State	trench
12/16/2022	Greenwood	IN	Scott Stinson (53) fatally crushed between concrete box and trench wall.
12/12/2022	Buffalo Grove	IL	Nikodan Zaremba (27) died in trench collapse.
12/12/2022	Jonesboro	AR	Austin Neth (31) died in trench collapse.
11/28/2022	Clarksville	IN	Emmanuel Martinez (22) died in trench collapse.
10/10/2022	Baton Rouge	LA	Freddie Robertson (59) fatally struck by trench box.
09/14/2022	South Gate	CA	Douglas Alexander Castillo (31) died in trench collapse.
07/26/2022	Columbus	OH	Arlis Clark (33) fatally crushed by trench box.
07/22/2022	Coventry	CT	Dennis F. Slater (56) died in trench collapse.
07/06/2022	Valley Station	KY	Jerry Hagan (45) died in trench collapse.
07/05/2022	Albemarle	NC	Joshua Kerry Brindle (30) died in trench collapse.
06/28/2022	Jarrell	TX	Jose R. Vargas Ramirez (40) and Jimmy Lee Alvarado (21) died in trench collapse.
06/24/2022	Mckinney	TX	Paulin Sanchez (41) died in trench collapse.
06/24/2022	Sun Valley	CA	Misael Montoya (29) died in trench collapse.
05/09/2022	Punta Gorda	FL	Marcos Santiz-Lopez (42) and Brandon Colburn (25) died in trench collapse.
04/29/2022	Alto	MI	Ronald Bencker (68) and Peter Bencker (59) died in trench collapse.
02/27/2022	Indianapolis	IN	Timothy Harness (54) died in trench collapse.
02/02/2022	Lady Lake	FL	John Terranova (27) died in trench collapse.
01/11/2022	Jackson	MS	Mathew Miller (33) died in trench collapse.

<https://www.osha.gov/fatalities>

# Trench Fatalities – 2023

12/20/2023	Tustin	CA	Miguel Angel Amador Olvera (33) fatally struck by rock that fell into unprotected trench.
12/11/2023	Merced	CA	Michael Hamilton (57) died in trench collapse.
10/21/2023	Roswell	NM	Trey Gray (20) died in trench collapse.
10/02/2023	Jackson	WY	Lorenzo Cortes (51) died in trench collapse.
08/10/2023	Perry	GA	Caleb Smith (20) died in trench collapse.
07/10/2023	Knoxville	TN	Frank Culotta (50) died in trench collapse.
06/13/2023	San Antonio	TX	Shawn Pedragon (51) died in trench collapse.
05/18/2023	Mcalester	OK	Wade King (44) died in trench collapse.
04/20/2023	Carthage	NY	Mark Holder (59) fatally crushed in partial trench collapse.
04/10/2023	Holdenville	OK	Jose Valenzuela (48) died in trench collapse.

<https://www.osha.gov/fatalities>

# Trench Fatalities – 2024

Date of Incident ▼	City ▲	Select State ⇅	Hazard Description ⇅
<input type="text" value="Date"/>	<input type="text" value="City"/>	<input type="text" value="Select State"/>	<input type="text" value="trench"/>
03/01/2024	Dubuque	IA	Jacob Young (21) died in trench collapse.
03/01/2024	Lewisville	TX	Carlos Cabellos (38) died in trench collapse.
02/28/2024	Hammond	LA	Jose Godinez (53) died in trench collapse.
02/23/2024	Mobile	AL	LaDerrell Fields (46) fatally crushed between concrete pip and trench box.
02/07/2024	Shawnee	OK	Gerardo Sanchez (61) died in trench collapse.
01/12/2024	Dallas	TX	Jose Estrada (58) fatally crushed between trench box and guard rail.

<https://www.osha.gov/fatalities>

# WALNUT CREEK / Cause of deadly explosion investigated / Workers may not have known location of fuel pipeline

By **Henry K. Lee**, Janine DeFao, Leslie Fulbright, *Chronicle Staff Writers*  
Nov 13, 2004



**5 Fatalities and Others Seriously Injured**



# Worker Killed in Trench Collapse; 3rd Trench Death in California Since 2023

20 Feet Deep – No Protective System

August 28, 2024



The industrial accident occurred at about 4 a.m. at Hoyt Park Drive and Scripps Ranch Boulevard, according to the San Diego Fire-Rescue Department. Photo via OnScene.TV.

Reference: <https://www.equipmentworld.com>

REGULATIONS | SAFETY & COMPLIANCE

# Worker Dies After Buried in Trench Collapse in Tennessee



Reference: <https://www.equipmentworld.com>

# Colorado Contractor Sentenced to 90 Days in Jail After Trench Death

**Trench Collapse Victim Wins \$19 Million Jury Verdict**

**Contractor Fined \$82,149 After Project Manager Dies in Trench**

## 2 Arizona Contractors Cited for Trench Violations; Fines Total \$193K

**Contractor Faces \$170K in Trench Fines, Named "Severe Violator"**

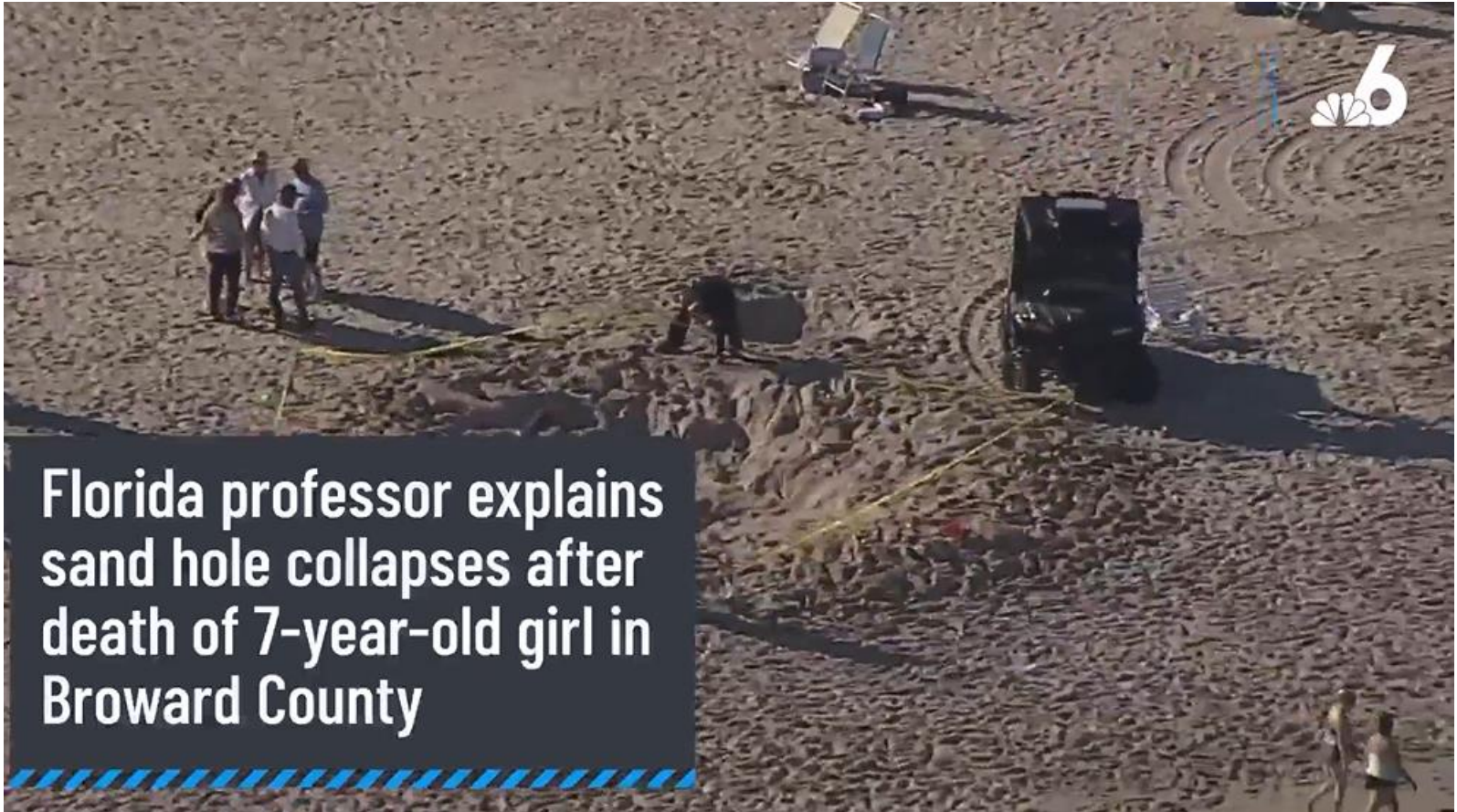
**Contractors in Texas, Okla. Face Fines Totaling \$345K After Trench Deaths**

## Contractor Faces \$72K Penalty After Worker Rescued from Trench Collapse



# When Sand Kills

February 2024



Florida professor explains sand hole collapses after death of 7-year-old girl in Broward County



**“The RULES”**

# Regulations, Standards, Laws, Requirements

OSHA	29 CFR 1926 Subpart P Excavations
ANSI	ANSI/ASSP A10.12 Safety Requirements for Excavations
Manufacturer	Protective Systems, Ladders, Equipment, etc.
RPE	Site-specific Designs, System Tabulated Data
State	Check for State Specific Requirements
Local	Check for Local Specific Requirements





# Excavation versus Trench

Excavation – any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal





# Excavation versus Trench

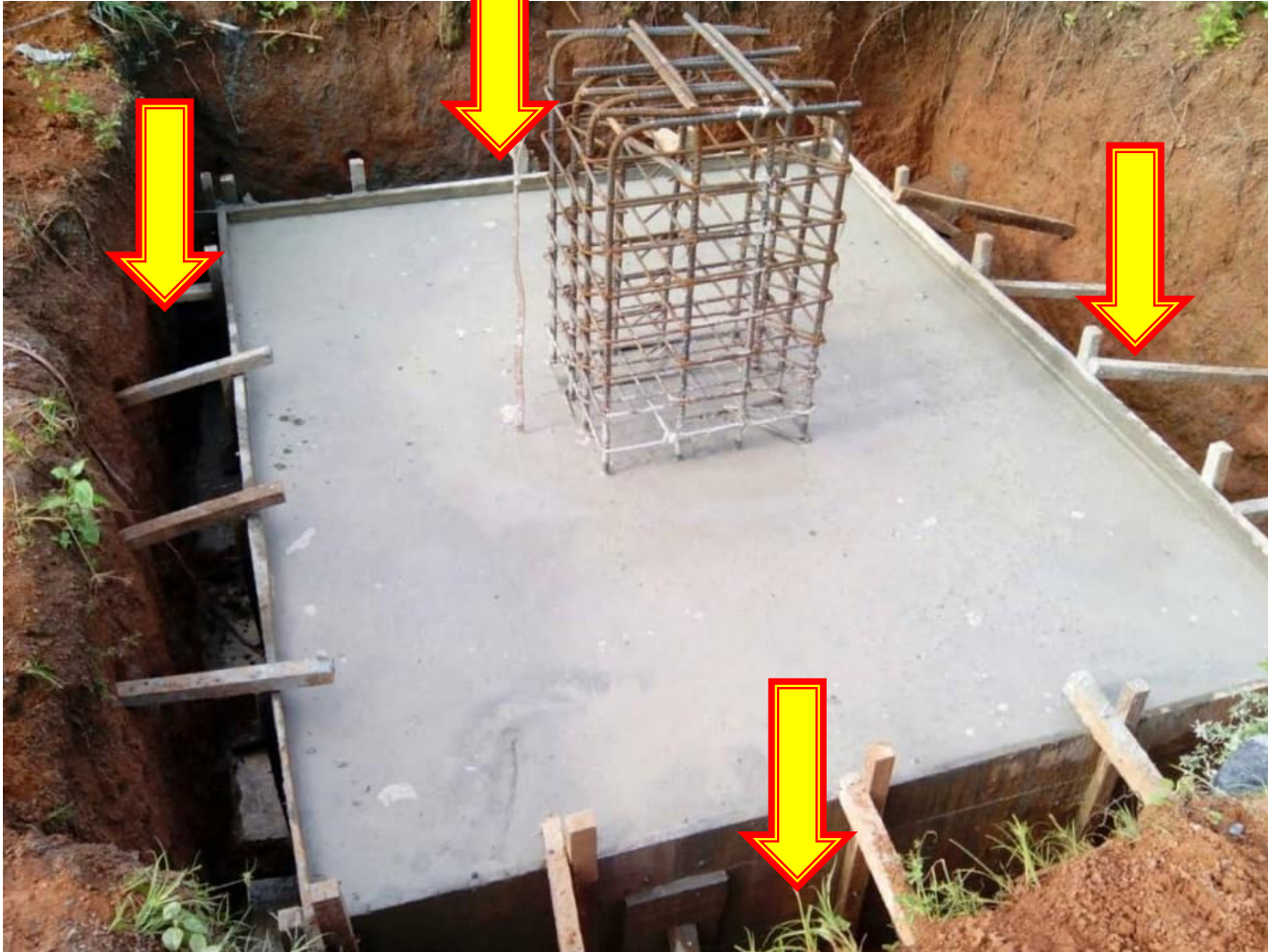
- ▶ **Trench** - narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet (4.6 m).
- ▶ If forms or other structures are installed or constructed in an excavation so as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet (4.6 m) or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.

# Trench





# Problems?



# 29 CFR 1926 Subpart P – Excavations

1926.650	Scope, Application, and Definitions
1926.651	Specific Excavation Requirements
1926.652	Requirements for Protective Systems
Appendix A	Soil Classification
Appendix B	Sloping and Benching
Appendix C	Timber Shoring
Appendix D	Aluminum Hydraulic Shoring
Appendix E	Alternatives to Timber Shoring
Appendix F	Selection of Protective Systems

# 29 CFR 1926.651 Specific Excavation Requirements

Surface encumbrances	Hazardous atmospheres
Underground installations	Water
Access and egress	Adjacent structures
Vehicular traffic	Loose rock or soil
Falling loads	Competent person – inspections
Mobile equipment – warning	Walkways – fall protection



# 29 CFR 1926.652 Requirements

## Protective Systems

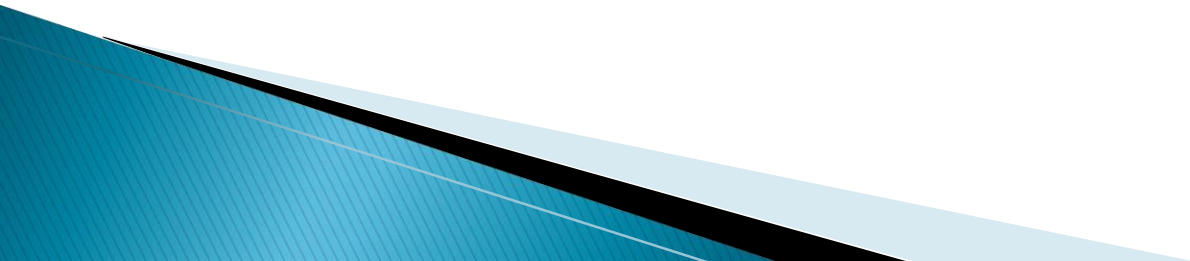
*Protection of employees in excavations.*

Each employee in an excavation shall be protected from cave-ins by an adequate protective system designed in accordance with paragraph (b) or (c) of this section except when:

- ▶ Excavations are made entirely in **stable rock**; or
- ▶ Excavations are **less than 5 feet (1.52m) in depth** **and** examination of the ground by a competent person provides **no** indication of a potential cave-in.

# Competent Person

...One who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.





# Competent Person

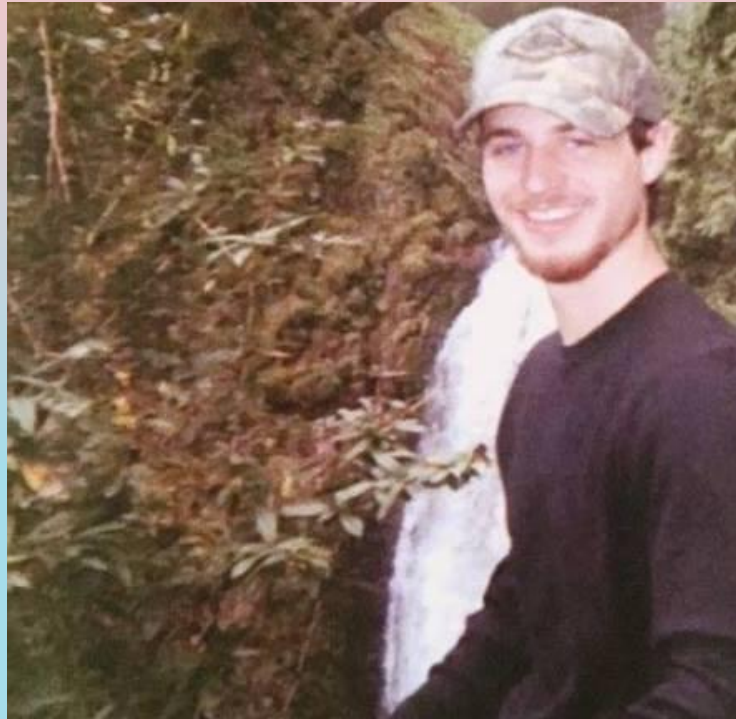




**CASE STUDY #1**

# In Memoriam...

**Michael Casey Holland**



Man who died in trench collapse loved family, music, life



**OREGON FATALITY ASSESSMENT  
AND CONTROL EVALUATION  
(OR-FACE)**

[www.ohsu.edu/or-face](http://www.ohsu.edu/or-face)

Oregon Institute of Occupational Health Sciences



## Fatality Investigation Report

OR 2016-16-1

**SPECIAL ALERT** Trench collapses are a recurring contributing factor to occupational fatalities in Oregon.

### Construction worker killed when trench collapsed

#### SUMMARY

On May 5, 2016, a 29-year-old construction worker employed by a small excavation contractor was killed when the trench he was working in collapsed and buried him in approximately 6 feet of dirt. The worker was part of a crew installing a sewer pipe at a residential property. The trench was 10 feet deep and approximately 3 feet wide in the area where the collapse occurred. The collapse occurred in an unprotected area of the trench, between two pieces of shoring that were spaced 15 feet apart (see Figure 1).



Figure 1. View from front of house: area of incident showing placement of shoring; collapse occurred in between the two pieces of shoring spaced 15 feet apart (indicated by arrows.)





Figure 2. Emergency responders preparing to install a trench box before starting rescue and recovery work, to prevent risk of additional collapse and injuries





Figure 3. View of trench work area in front of house





Figure 4. View from house showing trench work area and general soil conditions



Figure 5. View of work area under deck of house where spoils had been placed at the open edge of the trench



Photo Reference: **KATU2abc**





**WORKER KILLED IN TRENCH COLLAPSE**  
SOUTHWEST PORTLAND

**2**

6:04 71°



# TC Excavating LLC – Portland, Oregon

- ▶ May 5, 2016 – 1:00 p.m.
- ▶ 11 employees onsite
- ▶ Replacing a new sanitary sewer line – 180' long
- ▶ Project timeline = one week
- ▶ Trench depth ranged from 5' to 13' deep
- ▶ Incident occurred on 2<sup>nd</sup> day of work
- ▶ Trench was 75' long and 10' deep on day of incident



# TC Excavating LLC – Portland, Oregon

- ▶ Company owner – competent person
- ▶ Foreman installed shoring – less knowledgeable
- ▶ No inspection or soils analysis performed
- ▶ Owner stated they always default to Type C soil
- ▶ Type C soil – required maximum horizontal spacing was 6 feet with a waler...Shores were placed 15' apart
- ▶ Shoring tabulated data was not consulted and not met
- ▶ Worker was between the 2 shores when the trench collapsed – buried below 6 feet of dirt

# TC Excavating LLC – Citations

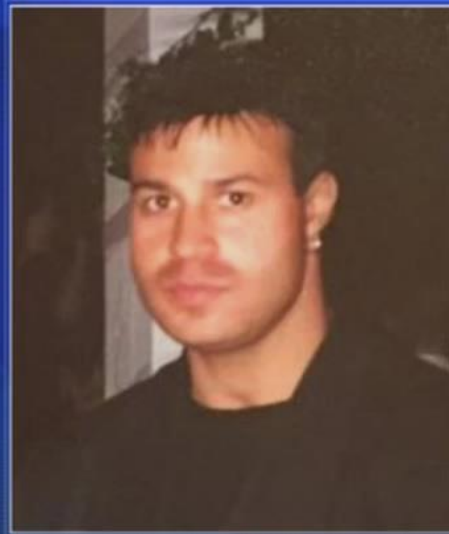
Type	Violation	Penalty
Serious	Inspections by competent person (daily, prior to start of work, as needed)	\$1,400
Serious	Spoil, materials, equipment at least 2' back from excavation edge	\$1,400
Willful	Inadequate protective system	\$70,000
Willful	Means of egress within 25' lateral travel of employee	\$70,000
Other	Oregon Rule – Safety Committee or Regular Safety Meetings	0

**Total Penalties: \$142,800**



**CASE STUDY #2**

# In Memoriam...



**ROBERT HIGGINS**



**KELVIN MATTOCKS**

## **DEVELOPING STORY**

**OWNER OF COMPANY LINKED TO BOSTON TRENCH COLLAPSE  
IS CHARGED WITH MANSLAUGHTER IN DEATH OF 2 WORKERS**

**25**  
6:24 47°



# Atlantic Drain – Boston, MA

- ▶ October 21, 2016 – 1:00 p.m.
- ▶ 5 employees onsite
- ▶ Preparing a trench for installation of a new sanitary sewer line
- ▶ Trench depth – 11'11"
- ▶ Straight cut walls of trench caved in... and...
- ▶ Fire hydrant came loose from attached water main
- ▶ Soil covered both workers and subsequently drowned

# 12 Dartmouth Street, Boston, MA



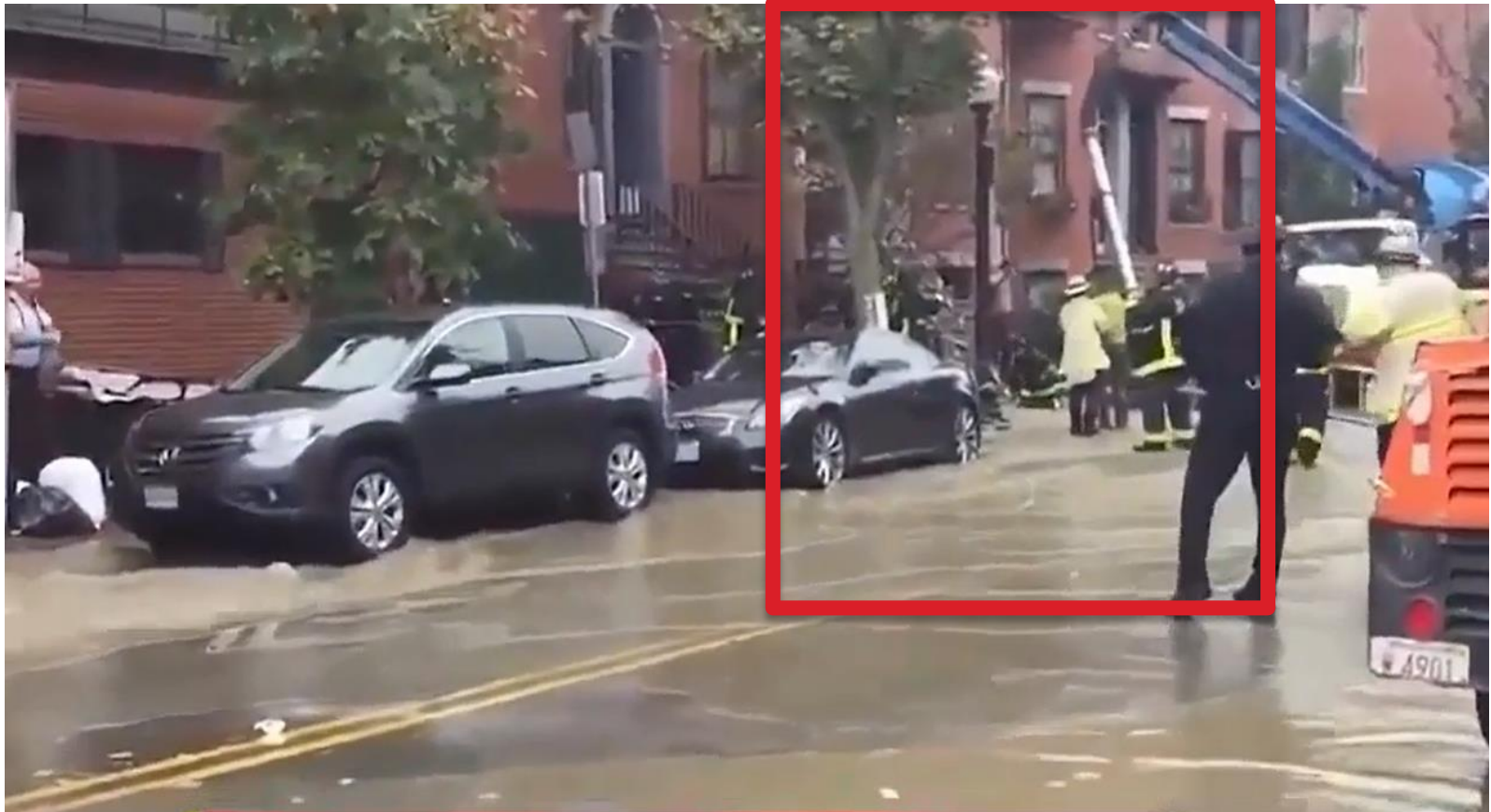








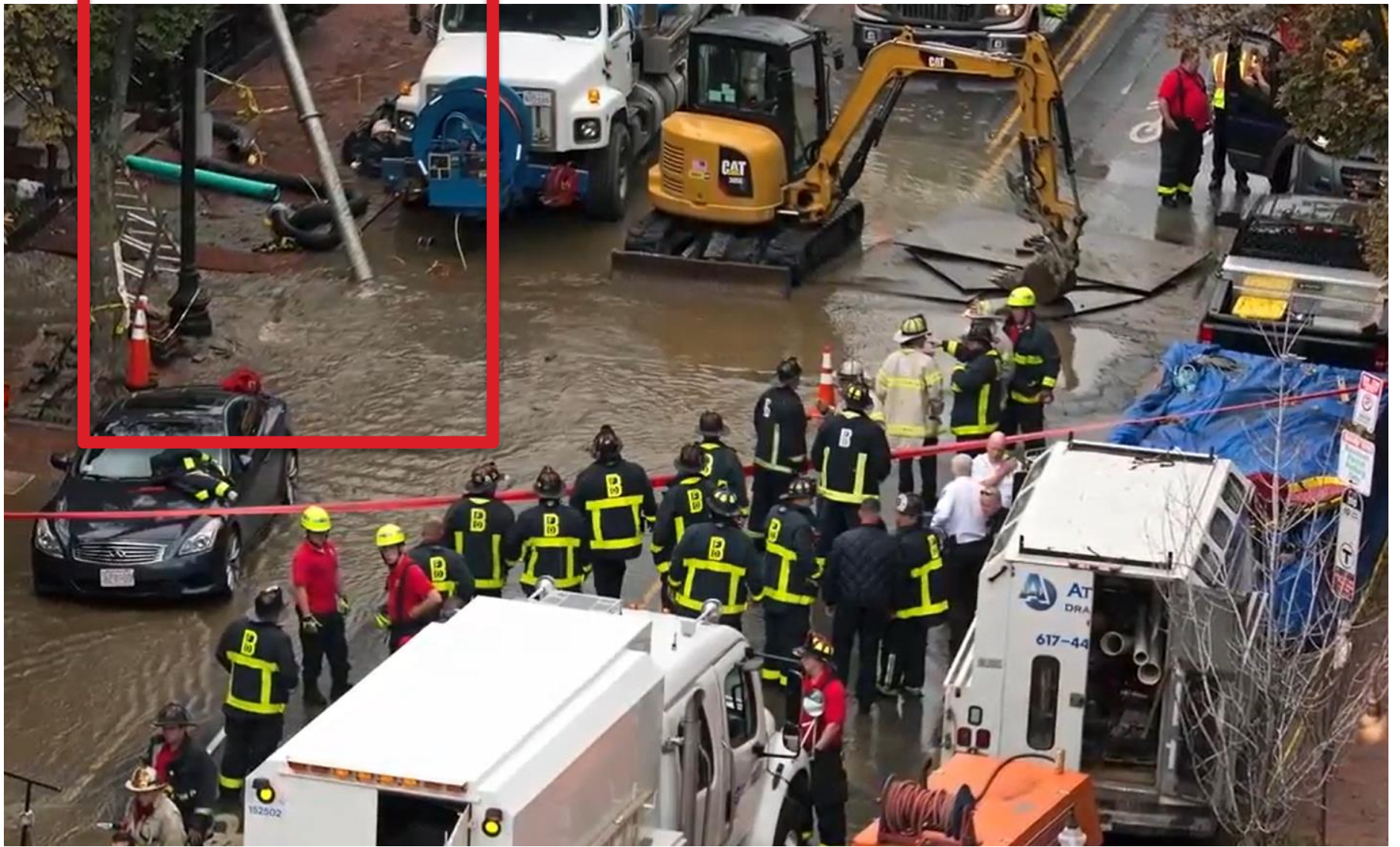




**BREAKING NEWS**  
**2 CONSTRUCTION WORKERS  
KILLED IN FLOODED TRENCH**













BOSTON

# After trench collapse that killed two, company fined \$1.4M for 18 workplace safety violations





U.S. DEPARTMENT OF LABOR

## Massachusetts Court Sentences Contractor Convicted for Manslaughter And Witness Intimidation in Deadly 2016 Trench Collapse

**BOSTON, MA** – The Suffolk County Superior Court in Boston, Massachusetts, recently sentenced Atlantic Drain Service Company Inc. owner Kevin Otto to **two years imprisonment on each of two counts of manslaughter, to run concurrently, and three years of probation for witness intimidation.** The court's action follows a U.S. Department of Labor Occupational Safety and Health Administration (OSHA) [investigation](#) into a trench collapse on October 21, 2016, that led to two fatal injuries of two employees.

The witness intimidation charge resulted from the defendant's attempts to mislead OSHA during the investigation of the collapse. **The court also fined Atlantic Drain \$1,000 for each count of manslaughter, and \$5,000 for witness intimidation, totaling \$7,000.**

“Employers that display willful disregard for employee safety and/or obstruct, mislead or otherwise interfere with an OSHA inspection will face serious consequences,” said OSHA Regional Administrator Galen Blanton in Boston, Massachusetts. “The court agreed Kevin Otto knew what safeguards were needed and required to protect his employees, yet he chose to ignore his responsibility to provide them. The result was the loss of two men.”



*Photo Resource: Boston Globe*



## U.S. Department of Labor

Occupational Safety and Health Administration

639 Granite Street

4th Floor

Braintree, MA 02184

Phone: 617-565-6924 Fax: 617-565-6923



# Citation and Notification of Penalty


**To:**  
ATLANTIC DRAIN SERVICE COMPANY, INC.  
200 Center Street  
Bellingham, MA 02019

**Inspection Number:** 1186266  
**Inspection Date(s):** 10/21/2016 - 10/21/2016  
**Issuance Date:** 04/11/2017

**Inspection Site:**  
10 - 12 Dartmouth Street  
Boston, MA 02116

*The violation(s) described in this Citation and Notification of Penalty is (are) alleged to have occurred on or about the day(s) the inspection was made unless otherwise indicated within the description given below.*

# Atlantic Drain – Citations

Type	Violation	Penalty
Serious	Frequent and regular inspections by competent person	\$12,675
Serious	Personal protective equipment – eye and face	\$12,675
Serious	Angle grinder – no guard	\$9,461
Serious	Ladder – 3 foot above side of trench	 <b>Grouped</b> \$12,675
Serious	Ladder inspection by competent person	
Serious	Carrying objects up and down ladders	
Willful	Provision of injury and illness records	\$18,922
(5) Willful	Training – recognition and avoidance of unsafe conditions	5 @ \$126,749
Willful	Ladder access to trench	\$126,749
Willful	Stability of adjacent structures	\$126,749

# Atlantic Drain – Citations

Type	Violation	Penalty
Willful	Competent person remove employees from dangerous trench	\$126,749
Willful	Excavation protective system	\$126,749
Repeat	Head protection	\$66,227
Repeat	Adjacent sidewalks and appurtenant structures undermined	\$66,227
Repeat	Design of timber shoring	\$126,749
Repeat	Deviations from manufacturer – no written approval	
Repeat	Equipment not maintained in accordance with manufacturer	
Repeat	Equipment not installed and removed to maintain employee protection	
Other	Reporting requirement	\$9,461

**Total Penalties: \$1,475,813**



**HAZARDS**



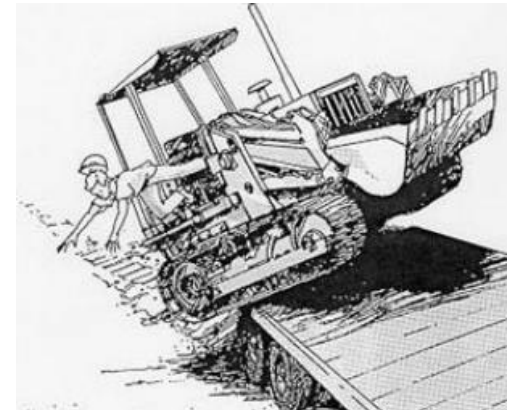
# Excavation Hazards

Collapse	Hazardous atmospheres
Loading/unloading materials	Water
Surface encumbrances	Adjacent structures
Underground utilities	Spoil piles
Overhead power lines	Surcharge loads
Access and egress	Material handling
Vehicular traffic	Weather
Falling loads	Falls
Heavy equipment	Others?



# Excavation Hazards

Collapse	Hazardous atmospheres
Loading/unloading materials	Water
Surface encumbrances	Adjacent structures
Underground utilities	Spoil piles
Overhead power lines	Surcharge loads
Access and egress	Material handling
Vehicular traffic	Weather
Falling loads	Falls
Heavy equipment	Others?



# Excavation Hazards

Collapse	Hazardous atmospheres
Loading/unloading materials	Water
Surface encumbrances	Adjacent structures
Underground utilities	Spoil piles
Overhead power lines	Surcharge loads
Access and egress	Material handling
Vehicular traffic	Weather
Falling loads	Falls
Heavy equipment	Others?



# Excavation Hazards

Collapse	Hazardous atmospheres
Loading/unloading materials	Water
Surface encumbrances	Adjacent structures
Underground utilities	Spoil piles
Overhead power lines	Surcharge loads
Access and egress	Material handling
Vehicular traffic	Weather
Falling loads	Falls
Heavy equipment	Others?





# Excavation Hazards

Collapse	Hazardous atmospheres
Loading/unloading materials	Water
Surface encumbrances	Adjacent structures
Underground utilities	Spoil piles
Overhead power lines	Surcharge loads
Access and egress	Material handling
Vehicular traffic	Weather
Falling loads	Falls
Heavy equipment	Others?



# Excavation Hazards

Collapse	Hazardous atmospheres
Loading/unloading materials	Water
Surface encumbrances	Adjacent structures
Underground utilities	Spoil piles
Overhead power lines	Surcharge loads
Access and egress	Material handling
Vehicular traffic	Weather
Falling loads	Falls
Heavy equipment	Others?



# Excavation Hazards

Collapse	Hazardous atmospheres
Loading/unloading materials	Water
Surface encumbrances	Adjacent structures
Underground utilities	Spoil piles
Overhead power lines	Surcharge loads
Access and egress	Material handling
<b>Vehicular traffic</b>	Weather
Falling loads	Falls
Heavy equipment	Others?



# Excavation Hazards

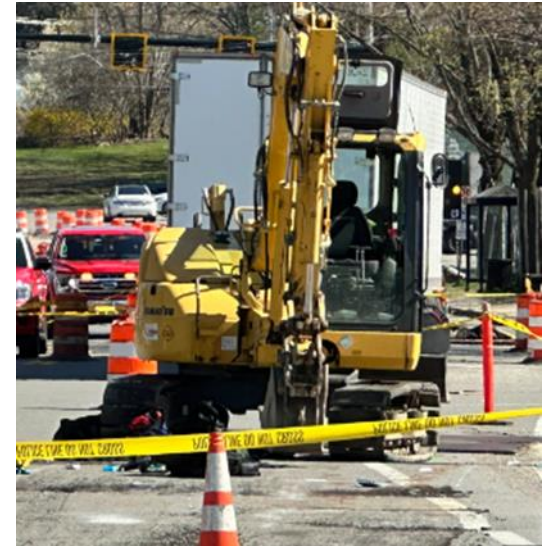
Collapse	Hazardous atmospheres
Loading/unloading materials	Water
Surface encumbrances	Adjacent structures
Underground utilities	Spoil piles
Overhead power lines	Surcharge loads
Access and egress	Material handling
Vehicular traffic	Weather
Falling loads	Falls
Heavy equipment	Others?





# Excavation Hazards

Collapse	Hazardous atmospheres
Loading/unloading materials	Water
Surface encumbrances	Adjacent structures
Underground utilities	Spoil piles
Overhead power lines	Surcharge loads
Access and egress	Material handling
Vehicular traffic	Weather
Falling loads	Falls
Heavy equipment	Others?



# Excavation Hazards

Collapse	Hazardous atmospheres
Loading/unloading materials	Water
Surface encumbrances	Adjacent structures
Underground utilities	Spoil piles
Overhead power lines	Surcharge loads
Access and egress	Material handling
Vehicular traffic	Weather
Falling loads	Falls
Heavy equipment	Others?



# Excavation Hazards

Collapse	Hazardous atmospheres
Loading/unloading materials	Water
Surface encumbrances	Adjacent structures
Underground utilities	Spoil piles
Overhead power lines	Surcharge loads
Access and egress	Material handling
Vehicular traffic	Weather
Falling loads	Falls
Heavy equipment	Others?



# Excavation Hazards

Collapse	Hazardous atmospheres
Loading/unloading materials	Water
Surface encumbrances	Adjacent structures
Underground utilities	Spoil piles
Overhead power lines	Surcharge loads
Access and egress	Material handling
Vehicular traffic	Weather
Falling loads	Falls
Heavy equipment	Others?





# Excavation Hazards

Collapse	Hazardous atmospheres
Loading/unloading materials	Water
Surface encumbrances	Adjacent structures
Underground utilities	Spoil piles
Overhead power lines	Surcharge loads
Access and egress	Material handling
Vehicular traffic	Weather
Falling loads	Falls
Heavy equipment	Others?



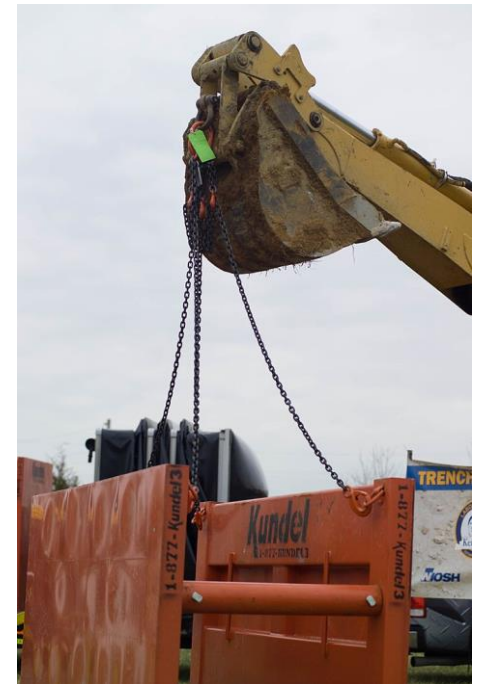
# Excavation Hazards

Collapse	Hazardous atmospheres
Loading/unloading materials	Water
Surface encumbrances	Adjacent structures
Underground utilities	Spoil piles
Overhead power lines	Surcharge loads
Access and egress	Material handling
Vehicular traffic	Weather
Falling loads	Falls
Heavy equipment	Others?



# Excavation Hazards

Collapse	Hazardous atmospheres
Loading/unloading materials	Water
Surface encumbrances	Adjacent structures
Underground utilities	Spoil piles
Overhead power lines	Surcharge loads
Access and egress	Material handling
Vehicular traffic	Weather
Falling loads	Falls
Heavy equipment	Others?



# Excavation Hazards

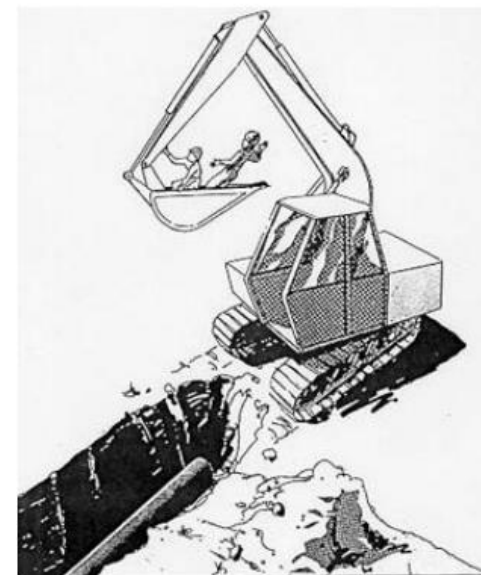
Collapse	Hazardous atmospheres
Loading/unloading materials	Water
Surface encumbrances	Adjacent structures
Underground utilities	Spoil piles
Overhead power lines	Surcharge loads
Access and egress	Material handling
Vehicular traffic	Weather
Falling loads	Falls
Heavy equipment	Others?





# Excavation Hazards

Collapse	Hazardous atmospheres
Loading/unloading materials	Water
Surface encumbrances	Adjacent structures
Underground utilities	Spoil piles
Overhead power lines	Surcharge loads
Access and egress	Material handling
Vehicular traffic	Weather
Falling loads	Falls
Heavy equipment	Others?



# Excavation Hazards

Collapse	Hazardous atmospheres
Loading/unloading materials	Water
Surface encumbrances	Adjacent structures
Underground utilities	Spoil piles
Overhead power lines	Surcharge loads
Access and egress	Material handling
Vehicular traffic	Weather
Falling loads	Falls
Heavy equipment	Others?



# Consistent Problems – Trench Fatalities

- ▶ Lack of competent person
- ▶ No inspection before entry
- ▶ Inadequate/no protective system
- ▶ Spoil piles and surcharge loading
- ▶ Insufficient/no training for workers
- ▶ Improper or no access/egress

**WHY?**





**CONTROLS**



# Control Your Hazards

- ▶ Commitment
- ▶ Knowledge
- ▶ Training
- ▶ Regulations
- ▶ Responsibilities
- ▶ Accountability

Plan your work and  
work your plan.

# Soil Classification

- ▶ Competent person
- ▶ Visual test
- ▶ Manual test



# Practice Trench Safety. It Saves Lives.



**Trench collapses cause fatalities and injuries.**

**It only takes a second for a trench to collapse. Take the following precautions to protect workers in trenches.**

Keep rocks, soil, materials and equipment **away** from the edge of the trench.

**Check** with the competent person **before entering a trench:**

- With standing or accumulating water.
- Where there may be a lack of oxygen or hazardous fumes or vapors.

Never enter a trench that has not been properly inspected. **A competent person** must inspect the trench and fix problems before work begins.

Only work in trenches that have **cave-in protection**. Trenches should be shielded/boxed, shored or sloped. Wear your hard hat.

Make sure there is a safe way to enter and exit the trench, such as a ladder, ramp or steps.

A trench doesn't have to be very deep to be dangerous. **A cubic yard of dirt** equals the weight of a mid-sized car -- **it will crush you!**



**SLOPE IT.  
SHORE IT.  
SHIELD IT.**

**[OSHA.GOV/TRENCHING-EXCAVATION](https://www.osha.gov/trenching-excavation)**





# PROTECT WORKERS IN TRENCHES

Prevent trench  
collapses and  
save lives:

**SLOPE** or bench  
trench walls,

**SHORE** trench walls  
with supports, or

**SHIELD** trench  
walls with trench boxes



U.S. Department of Labor



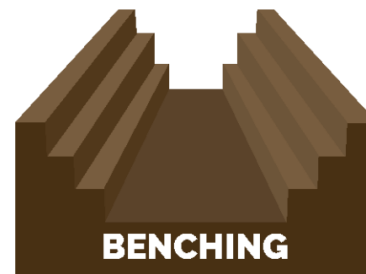
[WWW.OSHA.GOV/TRENCHING](http://WWW.OSHA.GOV/TRENCHING) • 800-321-OSHA (6742) • TTY 877-889-5627

OSHA 3215 (MAY 2018)

# Maximum Sloping Angles

SOIL TYPE	SLOPE	ANGLE (DEGREES)
Stable Rock	Vertical	90°
A	$\frac{3}{4}$ H:1V	53°
B	1 H:1V	45°
C	1 $\frac{1}{2}$ H:1V	34°

Note: Maximum 20' Deep Excavation



# Timber Shoring



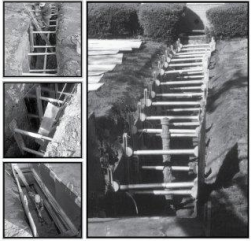
**Must Meet OSHA Tables or RPE Design**

# Hydraulic Shoring



**EFFICIENCY PRODUCTION**  
INCORPORATED

Hydraulic Aluminum Shoring



Tabulated Data  
Effective Dec. 4, 2007

**EFFICIENCY PRODUCTION INC.** AMERICA'S TRENCH BOX BUILDER™  
www.encyproduction.com 800-552-8800 517-676-8800 Fax 517-676-0373





# Trench Box/Shield



**SBH**  
NORTH AMERICA  
P.O. BOX 70965  
Houston, TX 77275  
Phone: (713) 872-5522  
Fax: (713) 872-4652

**8 x 12 TRENCH SHIELD  
MANUFACTURER'S  
TABULATED DATA**

MODEL NUMBER	120202	SHIELD HEIGHT	8 ft
SERIAL NUMBER	110202	SHIELD LENGTH	12 ft
PRESSURE CAPACITY	6000 LBS	SHIELD THICKNESS	4 in
SPREADER SIZE	8" TIGHT 20" PPS	MAX. SPREADER LENGTH	18 ft

**INDICATIONS FOR USE**

1. ALL OPERATIONS SHALL BE IN ACCORDANCE WITH OSHA CFR 19, PART 1926, SUBPART P.
2. SOIL SHALL BE CLASSIFIED IN ACCORDANCE WITH OSHA/ANSI A BY A COMPETENT PERSON OR BY AN APPROVED TEST CONDUCTED PRIOR TO INSTALLING THE EQUIPMENT.
3. CONTRACTOR IS RESPONSIBLE FOR ENSURING CONSTRUCTION MATERIALS AND EQUIPMENT COMPLIES WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS. CERTIFIED APPROVED WAREHOUSE.
4. WIDTH OF SHIELD MUST NOT BE MORE THAN FIFTY FEET ABOVE THE TRENCH BOTTOM PER FEDERAL OSHA 29 CFR PART 1926.1005.
5. THIS TABULATED DATA IS A GENERAL SET OF GUIDELINES SUBJECT TO ALL APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LOCAL SAFETY & PERMIT REGULATIONS OF APPLICABLE JURISDICTION.
6. THIS TABULATED DATA IS NOT INTENDED TO BE USED AS A JOB SPECIFIC EVALUATION AND SHALL NOT BE USED BY THE CONTRACTOR TO DETERMINE THE TRENCH, ITS PROPERTIES, OR THE SOIL TYPE.
7. OPERATIONS SHALL BE CONDUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF ALL APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS AND THE LOCAL JURISDICTION OF THE CONTRACTOR.
8. CONTRACTORS NOT USING THIS SHIELD SHALL BE ADVISED BY ATTACHED WARNING LABELS TO CONTACT THE MANUFACTURER TO OBTAIN THE SOIL TYPE CLASSIFICATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LOCAL SAFETY & PERMIT REGULATIONS OF APPLICABLE JURISDICTION.
9. SHIELDING SHALL BE LOCATED ON GRADE DOWN TO BOTTOM BASE OF EXCAVATION OR OTHERWISE AS MUST BE CALLED OUT BY THE JOB.
10. FILL ALL GAPS BETWEEN TRENCH WALL AND SHIELD.
11. OPERATOR SHALL NOT ALLOW THE SHIELD TO BE USED IN A MANNER NOT INTENDED BY THE MANUFACTURER AND SHALL BE RESPONSIBLE FOR ALL LOCAL SAFETY & PERMIT REGULATIONS OF APPLICABLE JURISDICTION.
12. ANY USE OF THIS TRENCH SHIELD WITHOUT SBH NORTH AMERICA RECOMMENDATIONS AND/OR THE TRENCH WALL THICKNESS SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE CALLED OUT BY THE CONTRACTOR.
13. TRENCH SHIELD SHALL BE USED TO PROTECT OPERATIONS AND SHALL BE CALLED OUT BY THE CONTRACTOR.
14. THE CONTRACTOR OF THE SHIELD, SPREADER AND SPREADER PILE MUST BE APPROVED BY THE CONTRACTOR BEFORE USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LOCAL SAFETY & PERMIT REGULATIONS OF APPLICABLE JURISDICTION.

**MAXIMUM ALLOWABLE TRENCH SHIELD DEPTHS PER SOIL TYPE:**

Type A	20 ft
Type B	20 ft
Type C-1	15 ft
Type C-2	15 ft

THE SOIL TYPE SHALL BE CLASSIFIED BY A COMPETENT PERSON PER FEDERAL OSHA CONSTRUCTION SAFETY REGULATIONS, CFR 29, APPENDIX A.

**DEPTH RATINGS ACCOUNT FOR T2 PPS MINIMUM OSHA BURCHARGE**

MIN. DIAMETER 12"

CERTIFIED BY  
MUST BE SIGNED & DATED

TRENCH245 2262011



# RPE Design





# RPE Design





# **ROLES and RESPONSIBILITIES**



# Roles and Responsibilities

- ▶ Owner
- ▶ Employer
- ▶ Registered Professional Engineer (RPE)
- ▶ Competent Person
- ▶ Supervisor
- ▶ Employee
- ▶ Contractor



# Competent Person...

- ▶ All safety requirements pertaining to excavations, trenches, and earth work
- ▶ Soil behavior, analysis, and classification
- ▶ Requirements for and use of protective systems and....
- ▶ Have authority to take prompt corrective actions on the job as conditions warrant



# Don't Forget to Ask... What Will 911 Do For You?



**It's All Good...Until it's NOT!  
Plan, Plan, Plan!**



**RESOURCES and REFERENCES**



Table View

# Enforcement Cases with Initial Penalties of \$40,000 or Above

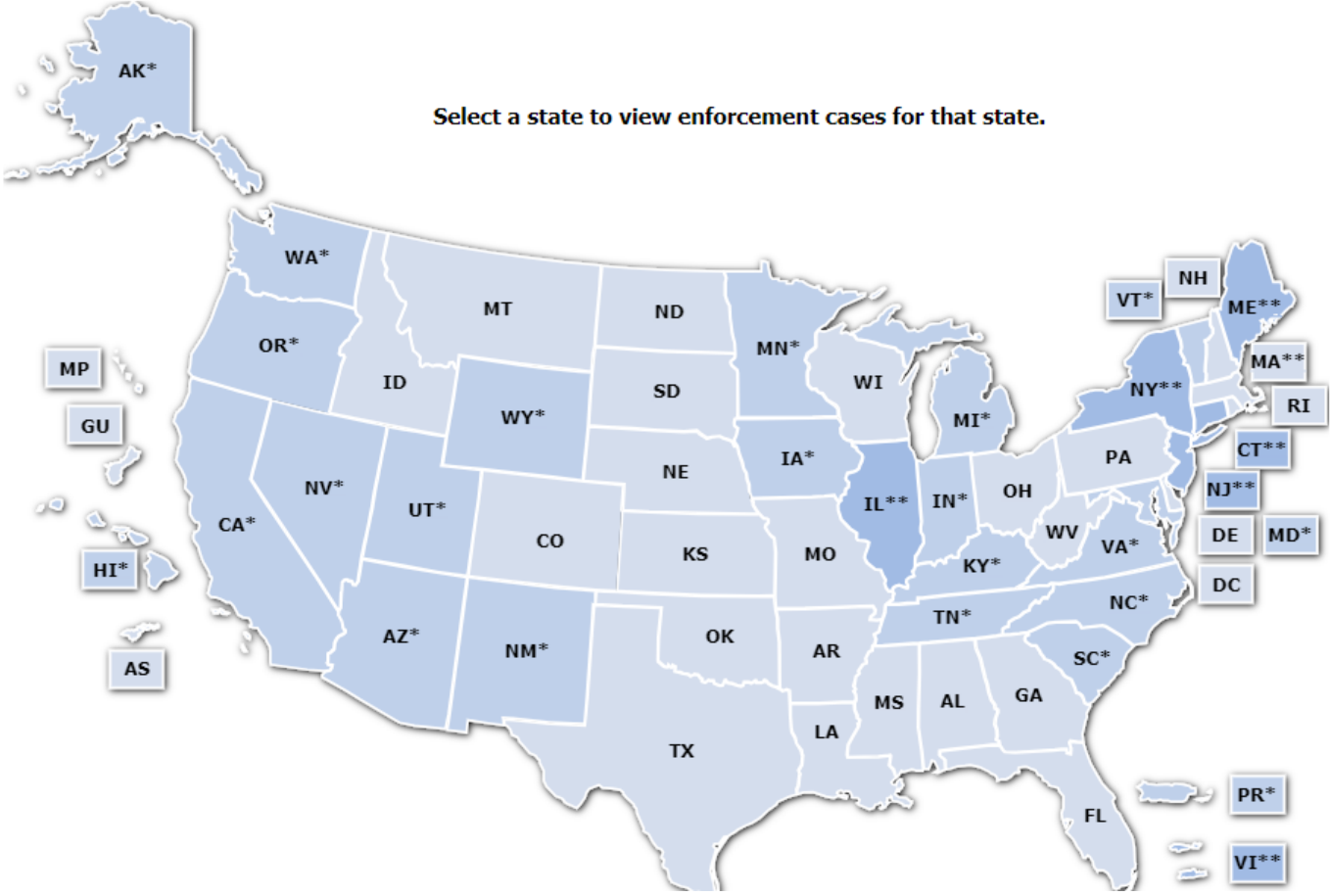


Table View

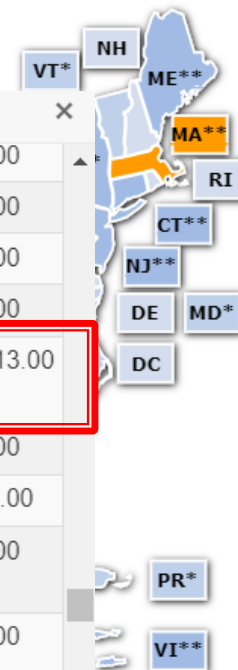
## Enforcement Cases with Initial Penalties of \$40,000 or Above



Select a state to view enforcement cases for that state.



Massachusetts					
MA	<a href="#">1198458.015</a>	Hans Kissle Company, LLC	HAVERHILL	06/15/2017	\$54,324.00
MA	<a href="#">1199013.015</a>	Savers Recycling Inc.	NORWOOD	05/19/2017	\$54,323.00
MA	<a href="#">1220901.015</a>	Wheelabrator Saugus, Inc.	SAUGUS	05/15/2017	\$46,268.00
MA	<a href="#">1195235.015</a>	SCA Construction, Inc.	KINGSTON	05/11/2017	\$69,315.00
MA	<a href="#">1186266.015</a>	ATLANTIC DRAIN SERVICE COMPANY, INC.	BOSTON	04/11/2017	\$1,475,813.00
MA	<a href="#">1189275.015</a>	Bob's Tire Co., Inc.	NEW BEDFORD	04/10/2017	\$77,005.00
MA	<a href="#">1184995.015</a>	Table Talk Pies, Inc.	SHREWSBURY	03/24/2017	\$122,948.00
MA	<a href="#">1191723.015</a>	Feeney Brothers Excavation, LLC	WELLESLEY	03/24/2017	\$45,632.00
MA	<a href="#">1193241.015</a>	Ridge Brothers Construction, Inc	PLYMOUTH	03/21/2017	\$41,830.00



# Inspection Detail

Case Status: OPEN

**Note:** The following inspection has not been indicated as closed. Please be aware that the information shown may change, e.g. violations may be added or deleted. For open cases, in which a citation has been issued, the citation information may not be available for 5 days following receipt by the employer for Federal inspections or for 30 days following receipt by the employer for State inspections.

## Inspection: 1186266.015 – Atlantic Drain Service Company, Inc.

Inspection Information - Office: Boston South

Inspection Nr: 1186266.015

Report ID: 0111400

Date Opened: 10/21/2016

**Site Address:**

Atlantic Drain Service Company, Inc.  
10 - 12 Dartmouth Street  
Boston, MA 02116

**Union Status:** NonUnion

**SIC:**

**NAICS:** 237110/Water and Sewer Line and Related Structures Construction

**Mailing Address:**

200 Center Street, Bellingham, MA 02019

# JUNE IS TRENCH SAFETY MONTH!

## Safety Training and Protective Systems Save Lives



## Trench Safety Stand Down Week | June 17–21, 2024

*Make plans for your company to participate in the 2024 NUCA Trench Safety Stand Down (TSSD) Week. Being a part of our popular 8th annual TSSD Week will help educate your employees on trenching hazards at the jobsite.*

OSHA's National Emphasis Program on Trenching and Excavation is a high agency priority. Sponsored this year by NUCA National Partners United Rentals and Sunstate Equipment Co., NUCA and OSHA have teamed up for our annual trench safety program. More than 25,800 employees on 2,487 jobsites from 455 companies participated in the 2023 TSSD.

Every company or organization that holds a TSSD will receive a certificate of participation, as well as hard-hat stickers for every employee who participated. Recognition will also be given in NUCA publications. Please plan for your company to be a part of this vital industry safety event this year.

2024 TSSD Sponsored By



TRENCH SAFETY RENTALS

Alex E. Paris Contracting  
Barber Utilities  
Caterpillar, Inc.  
Cohen-Tech, Inc.  
Coo & Main  
Greg Stradwick & Associates  
HRP Construction

John Deere  
Johnson Bros.  
L.S. Roloff Construction  
National Trench Safety  
Pattison-Schmitt Civil Contractors  
Team Fishel  
United Rentals

Also Sponsored by NUCA's Safety Ambassadors Club

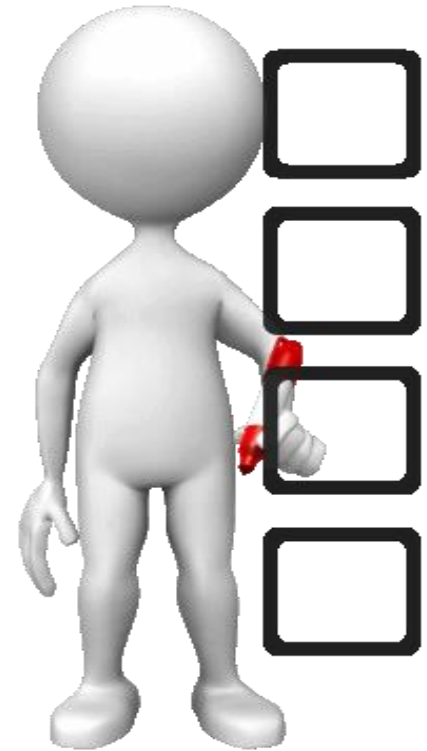
For more details and TSSD materials: [nuca.com/tssd](https://nuca.com/tssd) #TSSD24 #TrenchSafetyMonth



# Learn More...

- ▶ OSHA
- ▶ Standards
- ▶ Regulations
- ▶ Safety and Health
- ▶ Certificate and Degree Programs

**Visit....**



- Home
- Training Requirements and Resources >
- Outreach Training 10-Hr/30-Hr Cards >
- OTI Education Centers >
- Susan Harwood Training Grants >

# OSHA Training Institute Education Centers

## Find Training on Many Topics

The OSHA Training Institute (OTI) Education Centers are a national network of non-profit organizations authorized by OSHA to deliver occupational safety and health training for all levels of workers.

 <b>PROGRAM INFORMATION</b>	 <b>FIND TRAINING</b>	 <b>CERTIFICATES AND DEGREES</b>
<ul style="list-style-type: none"><li>History</li><li>Fact Sheet</li><li>Statistics</li><li>FAQs</li><li>Contact Us</li></ul>	<ul style="list-style-type: none"><li>Course Titles</li><li>Course Descriptions</li><li>Searchable Schedule</li><li>Spanish Training</li><li>List of Centers</li><li>Map of Center Locations</li></ul>	<ul style="list-style-type: none"><li>By Center Location</li><li>By Degree Program<ul style="list-style-type: none"><li>Certificate</li><li>Associate</li><li>Bachelor</li><li>Master</li><li>Doctorate</li><li>OSHA Safety and Health Fundamentals Certificate</li></ul></li></ul>

<https://www.osha.gov/otiec>

# References and Resources

Occupational Safety and Health Administration (OSHA)	29 CFR 1926 Subpart P Excavations	<a href="https://www.osha.gov/">https://www.osha.gov/</a>
OSHA Training Institute Education Centers (OTIEC)	National Network OSHA-authorized	<a href="https://www.osha.gov/otiec">https://www.osha.gov/otiec</a>
Bureau of Labor Statistics (BLS)	Workplace Injuries	<a href="https://www.bls.gov/">https://www.bls.gov/</a>
National Institute for Occupational Safety and Health (NIOSH)	Trenching and Excavation Safety	<a href="https://www.cdc.gov/niosh/">https://www.cdc.gov/niosh/</a>
National Utility Contractors Association (NUCA)	Trade Association Utilities/Excavations	<a href="https://nuca.com/">https://nuca.com/</a>
Center to Protect Workers Rights (CPWR)	Construction Chart Book	<a href="https://www.cpwr.com/">https://www.cpwr.com/</a>
National Fire Protection Association (NFPA)	NFPA 1670 – Technical Search and Rescue (into - NFPA 2500)	<a href="https://www.nfpa.org/">https://www.nfpa.org/</a>

# QUESTIONS





# Summary

- ▶ Background
- ▶ “The Rules”
- ▶ Case studies
- ▶ Hazards
- ▶ Controls



**Prevent**

# Tragedy in the Trenches

*Thank  
you*