

Trench Safety

What is the hazard?

When a sub-surface excavation is created, there is a high likelihood that the soil walls will collapse. There are many tasks that workers conduct while inside relatively narrow sub-surface excavations, trenches. If a worker is inside a trench when the soil walls collapse, he will most likely be killed (by suffocation or compression injuries). Those who survive will likely have serious musculoskeletal injuries. Other hazards to workers inside trenches include: electrocution, explosion, and water engulfment from underground utilities, falling loads, rocks, and soil, collapse of undermined surface structures, and the potential for a hazardous atmosphere.

Level of Employee Exposure

Do you have employees exposed to this hazard?

Any employee who enters a subsurface excavation with a soil wall on at least one side and less than 15' across the narrow part of the excavation (as measured at the bottom) is exposed to this hazard.

Examples: Employees who are: installing or repairing underground utility pipes, working on foundation exteriors, installing frost walls, installing drainage, conducting / observing perc tests in soil, inspecting septic systems, conducting chemical spill emergency response activities, evaluating contaminated soil and digging graves.

YES / NO

If you answered NO, you never have any employees exposed to this hazard, you have completed this hazard assessment tool.

If you answered YES, please complete the table below and continue on with the remainder of this hazard assessment tool.

List the tasks that expose your employees to this hazard.

Estimate the number of employees conducting each task, and the estimated frequency that each task is conducted (first per employee and then for the agency overall (e.g., how many times per day/week/month or year)).

1. Describe task that exposes employees to this hazard	2. How often, on average, would an individual employee conduct this task? (list either times per week, per month, or per year, whichever best applies).	3. How many employees do you have who conduct this task?	4. Multiply the answer for #2 by the answer for #3 to get a total exposure for your employees.
<i>Example: Conducting foundation repair</i>	<i>0.1 times per year (this task occurs once every ten years)</i>	<i>6 employees</i>	<i>6 times per year</i>

Use of Technical Standard / Regulation / Guideline

What regulation or standard do you follow to protect employees from this hazard, if any?

Upper Management Support / Policy / Full Hierarchy Accountability

Is there a written policy/program on this hazard?

Who is in charge of ensuring that employees are kept safe from this hazard? A) At the senior management level. B) During day-to-day operations.

How does the agency ensure that the regulation or policy relative to this hazard is followed by all employees?

Training / Certification

What training have employees received relative to this hazard?

Is this a one-time training?

If no, how often does re-training occur?

When are new employees trained?

Please provide general information on training content.

Is there any special license, qualification or amount of training required before an employee can conduct the tasks you listed above under the second question?

CONTROLS

Controls – Safety Equipment - Have

What safety equipment do you have for this hazard?

(typical safety equipment for trenches includes: ladders, trench boxes (fixed and modular), shoring, engineered plywood (aka “fin forms”) used with shoring, manhole braces, manhole boxes, etc. There are multiple types of shoring, aluminum hydraulic shoring is the most common.)

What condition is it in?

How often is it inspected?

Were employees trained in its use and maintenance?

Is it labeled with any “approval” designation?

How was this equipment selected?

Do you have there manufacturer’s instruction for use (known as the “manufacturer’s tabulated data”)? (these would provide information such as the

maximum allowable depth for a trench box or the maximum spacing for shoring uprights)

Are they followed?

If the equipment was built by you or purchased equipment was modified, was it signed off by a professional engineer?

Do you have the all the correct types of trench safety equipment you need to cover all the types of worksites you have (examples: a trench box will not work in an excavation with any horizontal pipes running across it, your shoring uprights may be too short for your deeper excavations).

Do you have enough of this equipment to cover all active trench worksites, given that there may be multiple jobs going at the same time?

Controls – Safety Equipment - Use

How is it determined when this safety equipment should be used?

By regulation or standard?

By your written policy?

By specific criteria, such as a specific trench depth?

Always use for certain tasks?

Case-by-case or field determination?

There is no method for determining when safety equipment is used.

When safety equipment is supposed to be used, how frequently is it actually used?

Always mostly half-the-time sometimes never

Controls – Personal Protective Equipment - Have

What personal protective equipment do you have for this hazard?

What condition is it in?

How often is it inspected?

Is it shared or individually assigned to employees?

Were employees trained in its use and maintenance?

Is it labeled with an ANSI number or Class or other “approval” designation?

How was this equipment selected and by who?

How often is it replaced? How is this determined?

For work in trenches, do you have the all the correct types of personal protective equipment you need to cover all the types of work sites or work tasks you have?

Do you have enough of this personal protective equipment for all of the employees who need to use it at the same time?

Controls – Personal Protective Equipment - Use

How is it determined when personal protective equipment should be used?
By regulation or standard?
By your written policy?
By specific criteria?
Always use for certain tasks?
Case-by-case or field determination?
There is no method for determining when personal protective equipment is used.

When personal protective equipment is supposed to be used, how frequently is it actually used?

Always mostly half-the-time sometimes never

Controls - Administrative

Are inspections of trench worksites conducted before the start of work each day (or prior to each shift if there are multiple shifts)?

Are inspections conducted by a “competent person” (generally, someone who has enough training and experience to recognize and correct trench hazards and who understands soils analysis as per the OSHA standard).

Does the “competent person” have the authority to stop work until problems/hazards identified in the inspection are corrected?

Emergency Response Planning

Is there a plan in place to respond to an accident or emergency with this hazard?

Are you relying on outside responders or do you have an internal response team?

If you are relying on outside responders, have they been made aware of the (name) hazards at your facility?

Do you know if they are trained and equipped to respond to this type of emergency?

If you plan to use internal responders, what type of training did internal responders receive?

Has the emergency response plan for this hazard been tested with a drill?

Concerns / Near Misses / Accidents

Is there a designated person to whom employees go with complaints or concerns about this hazard?

Is there a formal reporting procedure for near misses (narrowly avoided accidents)?

Is there a formal reporting procedure for accidents/injuries/illnesses with this hazard?

Have you had any accidents or near misses with this hazard? Please give an estimated date and brief description.

Prevention

In the "Level of Employee Exposure" section, you identified tasks that expose employees to the hazard assessed in this tool.

Can you identify any ways that would eliminate employee exposure to this hazard?

For example, can you eliminate the hazardous task?

Modify the hazardous task?

Use a tool instead to eliminate the need for the employee to enter the hazardous area?

Do the task remotely, for example with cameras?

What would be needed to implement these preventive measures?

Other / Comments / Anything Else You Want to Add

Are there any other specific controls to protect employees from this hazard?

Any other general comments?

IF YOU HAVE QUESTIONS OR NEED ASSISTANCE WITH THIS DOCUMENT,
CONTACT: Hilary Hackbart, Massachusetts Division of Occupational Safety,
617-969-7177, ext. 333, or hilary.hackbart@state.ma.us