WELCOME TO HARD HAT TRAINING!

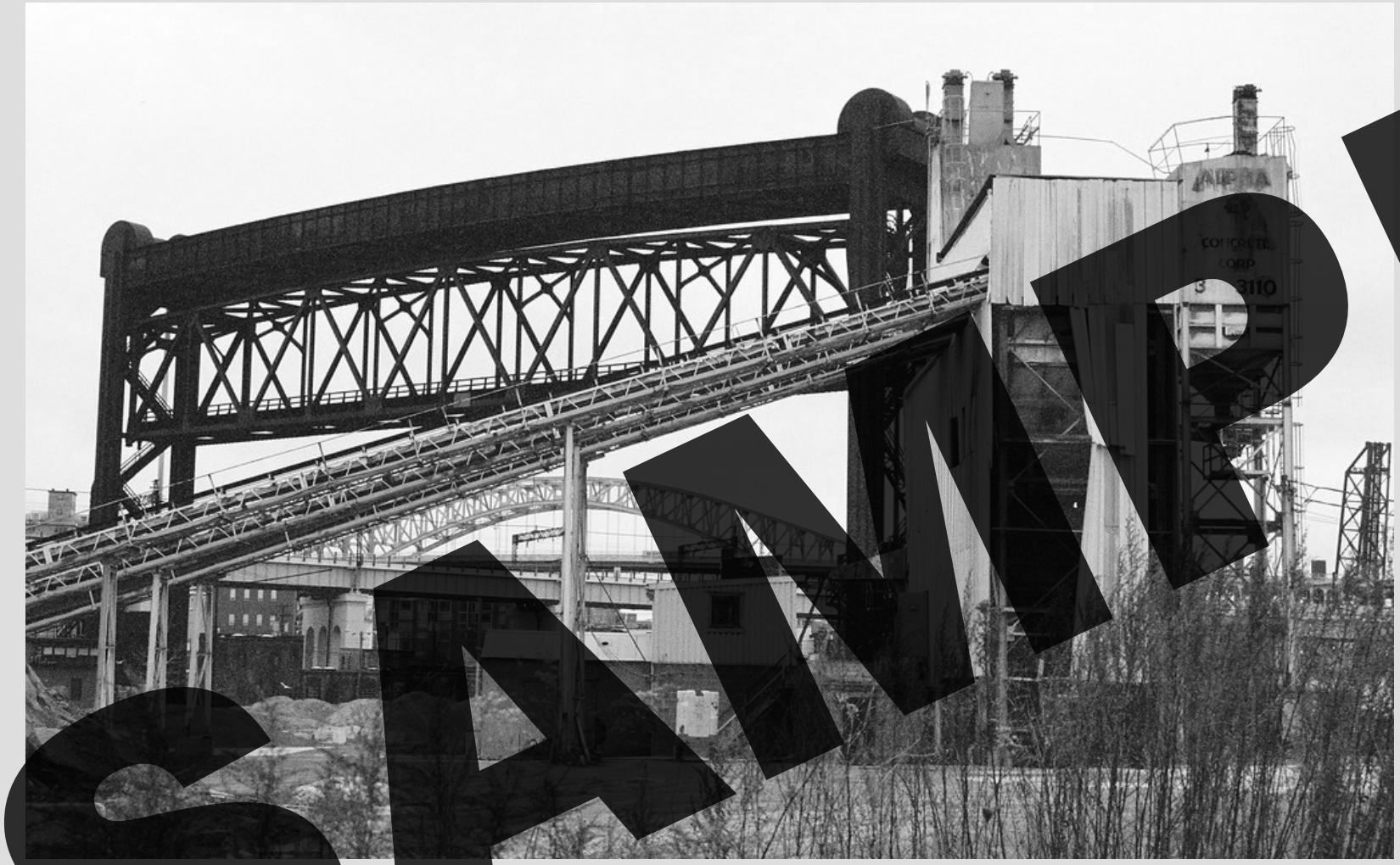
Welcome to the Hard Hat Training Series. Today, we will be conducting the HAZWOPER 40-hour course. This training will provide you with the information needed to keep you up to date on the HAZWOPER training standards. Additionally, it will help you maintain your knowledge and understanding of how to safely manage hazardous materials.

HAZWOPER: A History

We have been using hazardous materials for manufacturing, cleaning, and a wide variety of other purposes for a very long time. However, for a nearly equal amount of time, the hazardous waste left over from these processes has been haphazardly dumped or abandoned wherever people found it convenient.

Beginning in the 1940s with the advent of the nuclear bomb and changes in manufacturing, the amount of hazardous waste being produced began to increase drastically. By the early 1970s, industries in the U.S. were already producing around 57 million metric tons of hazardous waste per year, much of which was unregulated.

Consider the example of the Cuyahoga River that carries water from Cleveland, Ohio to Lake Erie. Pictured on the right is the Cuyahoga River. This image is a sparkling representation of successful hazardous waste dumping regulations and environmental cleanup. Though the river is clean and clear today, it wasn't always that way.



Back in the 19th and 20th centuries, Cleveland was a hub for industrial manufacturing. With all the hazardous waste that industrial manufacturing produced, employers wanted a quick, simple option for disposal. Since this was before the days of recycling or waste regulation, many of the manufacturers used the Cuyahoga River as a dumping site for industrial waste.

Residents of Cleveland in the 1800s described the river as having yellow and black rings of oil swirling across the surface of the water that looked like grease in a soup. These floating bits of oil-covered waste could easily be ignited by sparks from passing trains.

Because manufacturers were frequently dumping hazardous waste there, the river caught fire 13 times between 1868 and 1969. The Cuyahoga was considered one of the most polluted rivers in the United States.

Not only was the Cuyahoga River pollution harmful to the environment, but it also posed extreme dangers to the community. In its record-breaking blaze of 1952, five people died as a result of the river catching fire. The incident also incurred over $1 million in damages to the city.

Image Courtesy of Cleveland Press Collection at Cleveland State University Library

Seventeen years later when the river caught fire for the last time, media coverage of the incident sparked a national uproar. Change was on the horizon.

Image Courtesy of Cleveland Press Collection at Cleveland State University Library

CLEVELAND PLAIN DEALER

CLEVELAND, SUNDAY MORNING, NOVEMBER 2, 1952

OIL SLICK FIRE RUINS FLATS SHIPYARD

Surly Ohio Pen Rebels Fed at Gunpoint

PRISON GETS FIRST QUIET AFTER RIOTS

1948 CASTS A VEIL OVER 'IKE TO WIN'

FLAMES HIT DRY DOCKS, THREE TUGS

HUGE VOTE IS ONLY SAFE NOV. 4 BET

61,927 at Stadium See Irish Whip Navy, 17-6

FINAL COUNTY POLL BOOSTS IKE'S EDGE

Board Orders 21,712 Voters Challenged

Image Courtesy of Cuyahoga County Board of Health

In 1976, the federal government stepped in and declared that something had to be done to reduce the amount of hazardous waste being poured into the environment. Consequently, the first hazardous materials monitoring plan was written and passed by Congress.

RCRA

The plan was known as the Recourse Conservation and Recovery Act, or RCRA, for short. As hazardous waste continues to be produced at an ever-increasing rate, RCRA regulates individual industries' management of their hazardous waste from the time it is generated to when it is disposed of either on or offsite.

RCRA gives the Environmental Protection Agency (EPA) authority to control hazardous waste from the “cradle to the grave.” This includes generation, transportation, treatment, storage, and disposal of hazardous waste. In addition to this, RCRA also established a framework for the management of non-hazardous solid waste.

RCRA was effective at controlling and monitoring new waste, but it didn't do much to deal with other serious hazardous waste issues, namely what had been generated before 1976.

CERCLA

In 1980, the Comprehensive Environmental Response, Compensation, and Liability Act was passed and became known as CERCLA. This helped to remedy past hazardous waste issues.

In short, CERCLA regulates and enforces the cleanup of hazardous waste sites that were created or abandoned prior to RCRA. This was and is vitally important to both human and environmental health, as hundreds of tons of hazardous waste had been improperly disposed of in recent history.

HSWA

HSWA, or the Federal Hazardous and Solid Waste Amendments, came next. These were a series of amendments to RCRA passed in 1984 that focused on minimizing waste and phasing out its land disposal. Additionally, corrective action for release was specified.

Other mandates of this law include increased enforcement authority for the EPA, more stringent hazardous waste management standards, and a comprehensive underground storage tank program.

SARA

Although, by this time, RCRA had been amended several times and was already improving the management of hazardous waste, there were other issues that had not been fully addressed. In 1986, SARA, or the Superfund Amendment and Reauthorization Act, was passed. SARA once again amended RCRA, making it more all-encompassing and further reducing environmental impact.

SARA stressed the importance of permanent remedies, amplified state involvement, and increased the size of the trust fund to $8.5 billion. It also formed regulations meant to protect hazardous materials workers.

HAZWOPER

SARA provided some guidelines for protecting hazardous materials workers and helped set the groundwork for what we know today as HAZWOPER, or the Hazardous Materials Operations and Emergency Response standard. HAZWOPER became law in 1990 and set specific standards in place that focused almost entirely on the safety of the worker.

National Institute for Occupational Safety and Health
NIOSH

OSHA®

The creation of hazardous materials training involved a joint effort between OSHA, the U.S. Coastguard, the EPA, and NIOSH. These organizations worked together to standardize the requirements for dealing with hazardous waste cleanup and emergency response situations. The resulting continuity between the organizations made it easier to address hazardous situations, reducing response times and making cleanup efforts more efficient and safer for those involved.

UNITED STATES COAST GUARD
SEMPER PARATUS
1790

EPA

The goal for this training, then, is to protect workers engaged in hazardous waste cleanup and emergency response operations by teaching the safety standards and training requirements. This means that it is designed to aid you, as the worker, and help protect your safety and health. It's easy to see these regulations as annoying and restrictive, but realistically, they save lives and protect our environment.

STANDARDS

29 CFR 1910.120- HAZWOPER standards general industry

29 CFR 1926.65 – HAZWOPER standards for construction (identical to 1910.120)

1910.120(e)(3)(i)- 40 hour training, general

1910.120(e)(3)(4)- 40 Hour training for managers and supervisors

1910.120(e)(3)-(4)- 24 Hour Training, general

1910.120(p)(7)(i)- Training for new employees

1910.120(e)(8)- Refresher training

The codes above address the training requirements for hazardous materials workers outlined in the hazardous materials standards. The training you are taking today will address these standards in their entirety and meet the requirements outlined in 29 CFR 1910.120 and 1926.65.

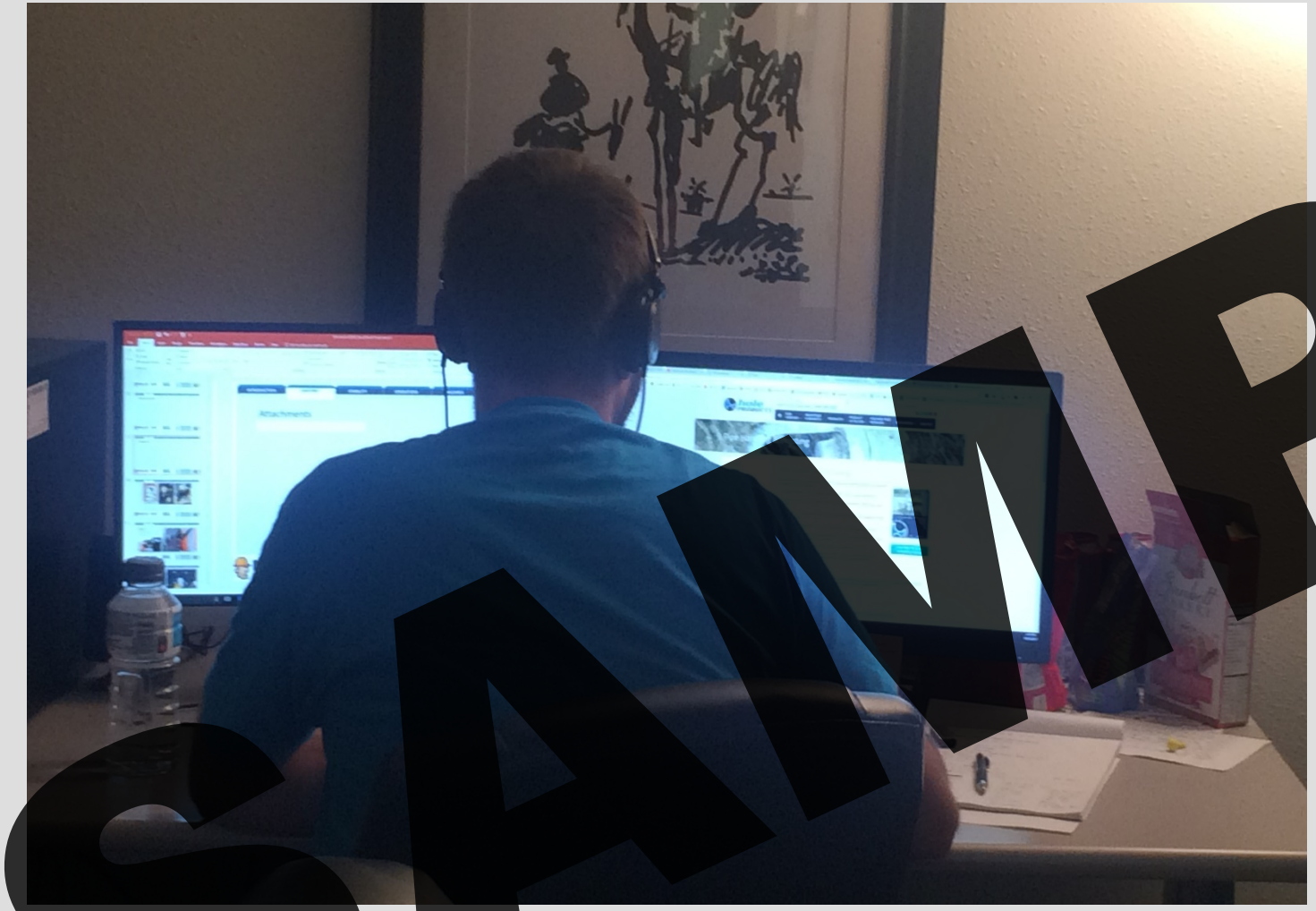
Training

Hazardous materials prep is more than just a set of regulations; it is a training requirement. All workers who fall under such standards are therefore obligated to receive certain levels of training. This training comes in the form of a 40-hour course, which is what you are taking; a 24-hour course; and an 8-hour refresher course.

The hazardous materials 40-hour course is designed for managers, people who work with hazardous materials on a regular basis, or individuals who are exposed to hazardous substances that exceed the limits outlined in OSHA 29 CFR 1910.1000, known as the Z Table. This course also requires three days of supervised, hands-on field experience in addition to the 40-hour classroom portion.

The 24-hour course is intended for the individuals who will only occasionally come in contact with hazardous substances. It is also intended for those who will be working at contaminated sites without exposure to hazardous substances at or above the permissible limits in the Z Table. This course will also require at least one full day of supervised field experience in order for you to be deemed certified.

The 8-hour refresher course must be taken annually by those who have completed a 24- or 40-hour course. This training will cover much of the same material in a condensed form, with little or no hands-on training required.



As mentioned, you must take a refresher course every year. So, what happens if you do not complete the refresher course within 12 months of your previous training? Do you lose your certification and have to redo the 24- or 40-hour course?

If your training has lapsed, your employer will determine whether you need to retake the course, based on your familiarity with safety and health procedures being used onsite. They should make a note in your personnel file explaining why the training was delayed and when it will be complete. You should then take the next refresher course.

So, to answer the original question, maybe. If the employer deems your knowledge sufficient and there is a viable reason you were late on your refresher, then you will likely be okay, so long as you keep a record stating why you missed the deadline. However, you may be required to retake the 24- or 40-hour course if you have gone far beyond the refresher date or if you are not able to meet the criteria mentioned.

Additional Training

Though hazardous materials training is extensive and must be readdressed on a yearly basis, it is not the final word on all employee preparation. There will likely still be further groundwork needed in order to be in compliance.

It is common to hear workers state that they already have experience and, therefore, do not need additional training. However, regardless of your experience or past training record, additional preparation may be needed. It is required by law that all individuals who work with chemicals or other hazardous materials receive training on safety plans, hazard communication, and hazardous materials specific to their site or position.

Additional training may be required:

- Before employees are first assigned duties relating to working with or around chemicals, or before there is a change in assigned duties
- Whenever a new chemical is introduced into the workplace
- Whenever there is a change in operations that presents a hazard or potential exposure about which training has not occurred
- In case of an accident or anytime an employee is injured or nearly injured during operations
- Whenever an employer deems it necessary or has reason to believe there are deviations from their HAZMAT program and procedures or that there are inadequacies in an employee's knowledge or application of those procedures

An employer is responsible for the safety of their employees and may require additional training and retraining on hazardous materials topics. Take a moment to read through the list of common factors that may constitute a need for additional training, listed to the left.

Beyond HAZWOPER training, which has set information and a required length, the extent of any additional preparation is to be determined by the employer. At the very least, additional training should include classroom instruction, followed by a written and practical examination that proves continued competency.

Who is This For?

HAZWOPER isn't for everyone. Though anyone can take HAZWOPER, it is only required for people in certain industries and doing certain jobs. For many, a basic training on hazardous materials will be sufficient. Let's take a moment to talk about just who is and is not required to take the HAZWOPER training.

At its most basic, HAZWOPER is intended for those whose jobs will expose or potentially expose them to hazardous substances or health hazards. This includes, but is not limited to:

- High concentrations of toxic substances
- Immediately Dangerous to Life and Health (IDLH) environments
- Situations that present an oxygen-deficient atmosphere
- Conditions that pose a fire or explosion hazard
- Situations with a high potential for an evacuation of the area
- Situations that require immediate attention because of the danger posed to employees in the area

Did you know?

The first semblance of a HAZ suit developed in the mid 1300s during the out break of the bubonic plague in Europe. The suits were intended to protect doctors from the plague stricken patients they were attempting to treat.

Though it never hurts to train above and beyond the minimum, not everyone is required to take HAZWOPER, even if you work with or around chemicals or other hazardous materials. The following slides will explain a few common instances where HAZWOPER is not required.

You do not need HAZWOPER if you will only be dealing with incidental releases that are limited in quantity and pose no safety or health threat to employees working in the immediate vicinity of the spill. This is only if the incidental release does not have the potential to become an emergency within a short time.

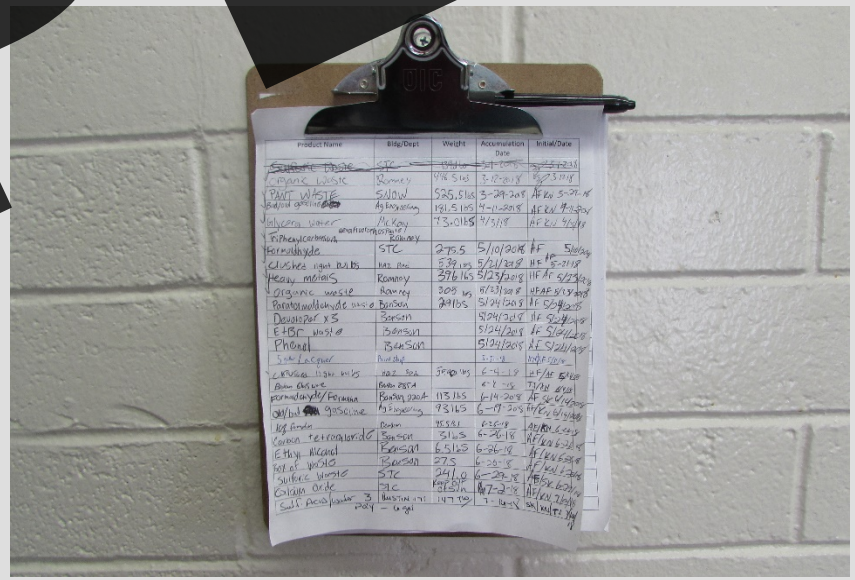
A lot of confusion often circulates around the medical field and HAZWOPER. Medical personnel are required to have some form of training in HAZMAT, though HAZWOPER is not required for all individuals. It is generally only for those who may be dealing with large quantities of hazardous materials or who are responsible for hazardous materials emergency response.

If you work for a large quantity generator (LQG) with a spill response plan that requires all employees to evacuate the premises in case of an accidental spill or emergency, and that the fire department or a spill response company will deal with the spill's containment and remediation, you may be exempted from HAZWOPER training.

If you change jobs or positions and are unsure if HAZWOPER training is necessary at your new position, you should consult your site safety professional. You can also easily contact OSHA or consult the HAZWOPER standards found in 29 CFR 1910.120 to get answers. Remember, it is always better to err on the side of caution when it comes to deciding whether HAZWOPER training will be necessary.

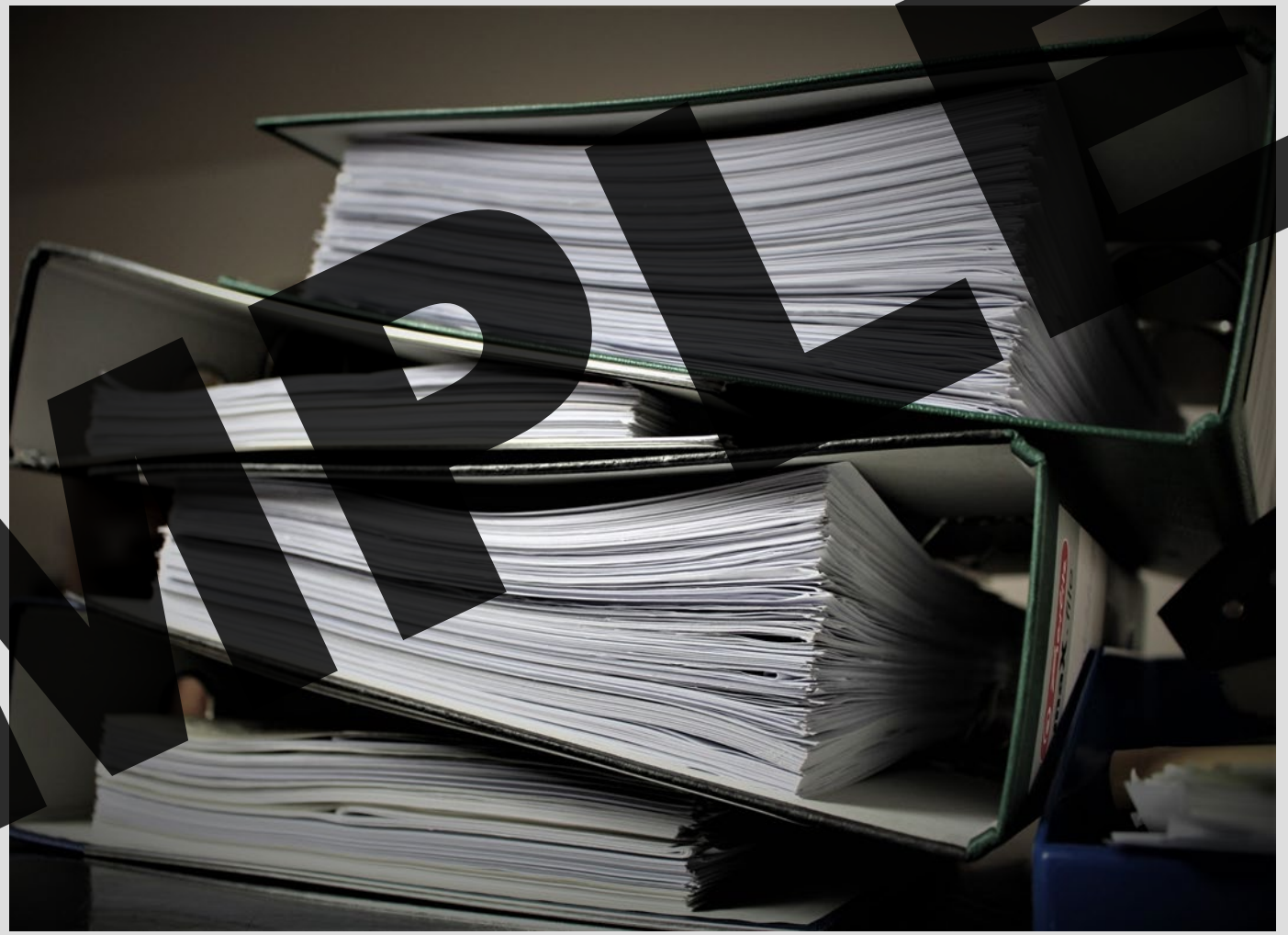
Training Outline

Now that we have some background in where HAZWOPER came from, what it does, and who it is for, let's briefly address some of the topics we will be covering throughout the rest of today's presentation.



Regulations & Overview

We will begin by discussing regulations and going through a brief overview of the history of OSHA, NIOSH, and the EPA, as well as the industries they cover. We will discuss employer responsibilities, worker rights and responsibilities, and some HAZWOPER standards.



Site Characterization

We will discuss what site characterization is and why it is important. We will address preplanning for site-specific hazards and how you can recognize and mitigate these hazards before they become a problem. We will also address site controls, site zones, and support zones.

Hazard Recognition

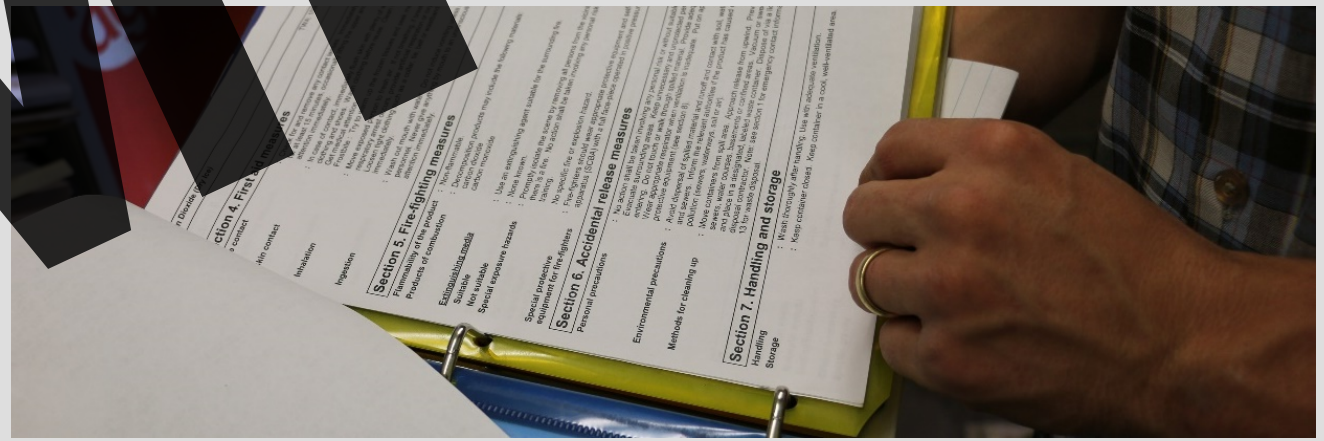
Here, we will discuss the various hazards that the worker needs to look out for: chemical, physical, biological, and environmental. We will touch on SDS sheets, labeling, and general hazard communication. We will also talk about OSHA's "focus four" hazards, such as fall protection.

Toxicology

In this section, we will learn about toxicants by route of exposure, effects on the body, types of toxicity, OSHA exposure standards, and methods of protection. Signs and symptoms of some toxicants will also be discussed to help hasten identification and first aid for those who have been exposed.

Hazard Identification

We will look at basic hazard identification, evaluation, and control. Beyond identifying and controlling hazards, we will also explore safe practices in the workplace that will prevent accidents and death.



Site Monitoring

In this section of the HAZWOPER 40-hour training, we will discuss air monitoring, specifically. We will go over types of air monitoring devices, how to use and calibrate them, and sample handling. In addition, we will go over general site monitoring principles regarding spill samples, soil monitoring, and water samples.

Illumination, Sanitation & New Technology

In this section of the HAZWOPER training, we will discuss the minimum illumination required for work in various settings. We will look at sanitation in temporary workspaces for potable and non-potable water, washing stations, and other such facilities. Also, we will go over protocol introducing new technological programs and equipment in the workplace.

Walking/Working Surfaces

Next, we will look at one of the leading causes of workplace injuries: slips, trips and falls. This will include the common walking and working surface hazards that lead to these injuries, as well as the safety measures you can take so you can prevent them from occurring at your workplace.

Hazard Communication

Here, we will explain chemical classification, categorization, and labeling to help employees know about the hazards they are working around. We will detail the basics of a Hazard Communication program and why they are important to have in your workplace.

Materials Handling

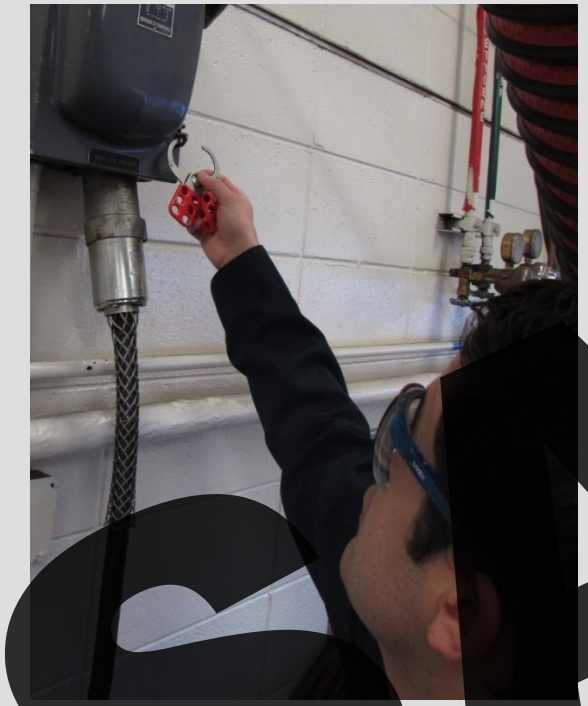
We will take some time to talk about materials handling. This will include briefly going over ergonomics, inspections and planning, and procedures for specific containers, as well as sampling and proper storage.

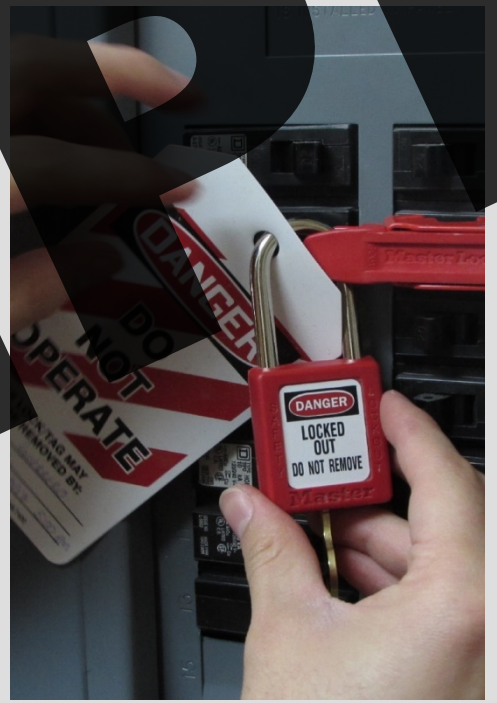
Excavation

We will address the use of excavation in hazardous waste locations. This will include information on the safe operation and waste management of earth-moving machinery, as well as basic trench safety for those who may be working in excavation areas.

Lockout/Tagout

In this section, we will explain the measures for controlling hazardous energies. Machines and equipment are not indestructible and cannot last forever. Therefore, when they break down or are in need of maintenance, proper procedures must be carefully followed to isolate the machine from its source of energy and prevent an incident from occurring.





Confined Spaces

We will address what a confined space is and how to test for hazardous environments or atmospheres within a confined space. We will also talk about operations and rescue within a confined space.

Fall Protection

We will explain the three types of fall protection: fall prevention, fall restraint, and fall arrest. We will look at fall prevention equipment and systems, as well as safe operations for working at heights.

Personal Protective Equipment

We will cover what is required in a PPE program, the types of PPE (such as eye and face, respirators, body and skin, and foot protection), and the different levels of protection and what those levels include. We will cover inspections, fit testing, storage, and maintenance. Lastly, we will discuss various hazards relating to PPE, such as permeation, degradation, and heat and cold.

Heat & Cold Stress

In this section, we will detail the signs and symptoms of heat and cold stress. There are certain measures that you can take to prevent heat- or cold-related illnesses on the jobsite, which you need to be familiar with.

Decontamination

This section will cover the process of removing or neutralizing hazardous materials that accumulate on workers and equipment. We will discuss proper decontamination, evaluation, and standard operating procedures, as well as how to implement them into safe work practices.

Medical Surveillance

This section will cover assessing individuals for adverse health effects and how to determine the effectiveness of exposure prevention strategies. We will discuss developing a site-specific medical program, pre-employment screening, medical treatment, recordkeeping, and frequency of medical checkups.

Emergency Response

Lastly, we will discuss pre-planning for an emergency, which entails creating an emergency response plan, designating response personnel roles, and mapping the worksite. We will also briefly cover procedures meant to minimize harm to people, property, and the surrounding environment. These procedures include evacuation, emergency decontamination, emergency first aid, emergency medical treatment, spill response, and fire suppression.

Hazard Definitions

Before we go on, let's address some of the definitions for "hazards" that will be used at times throughout today's training. Hazardous waste, hazardous substances, hazardous chemicals, and hazardous materials all may sound similar, but they are defined somewhat differently. Understanding these differences now will help you to better understand all sections of this presentation.

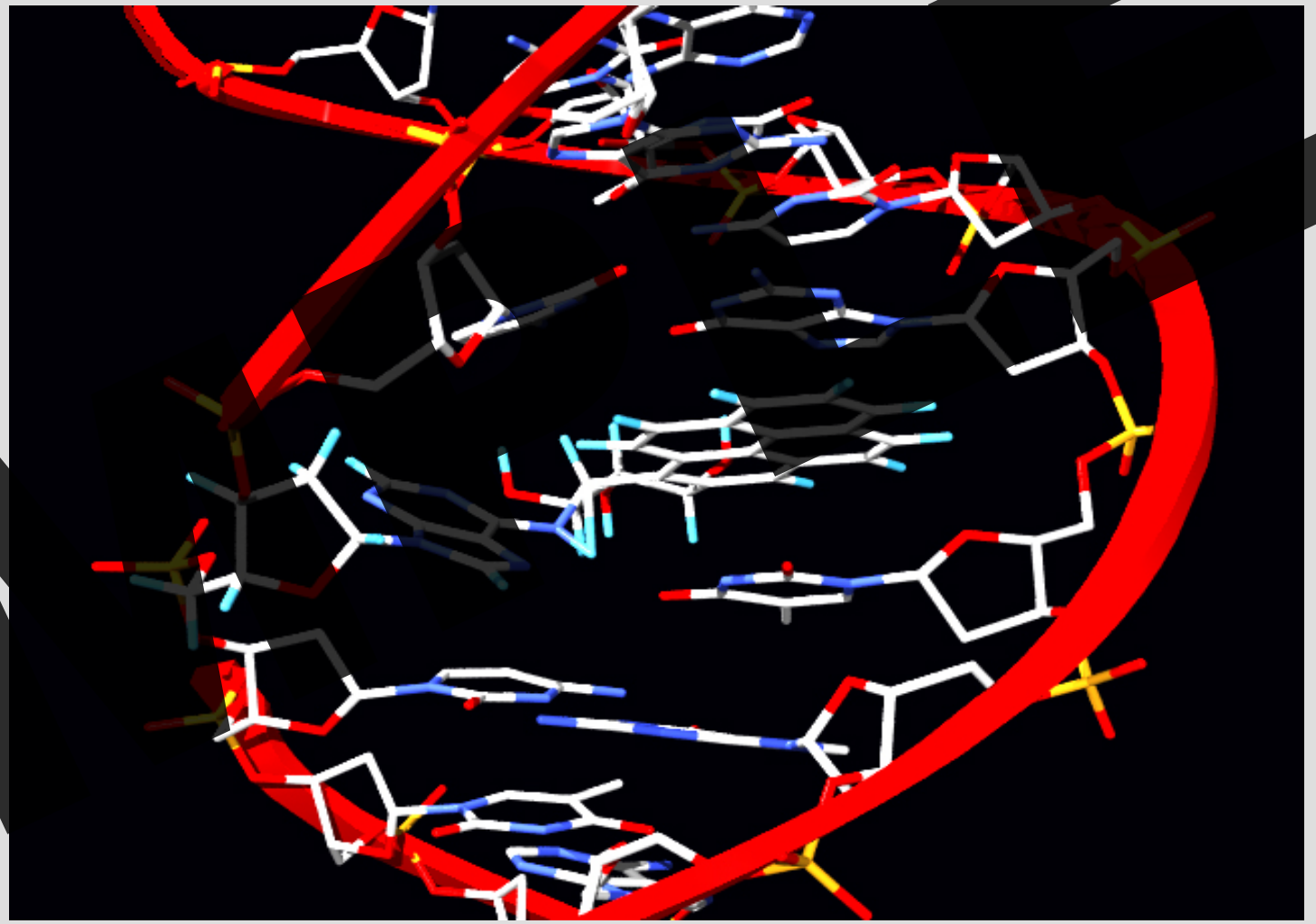
Hazardous wastes are defined as substances that have no commercial value, are ignitable, corrosive, reactive, or toxic, and are capable of causing substantial threats to human health and the environment.

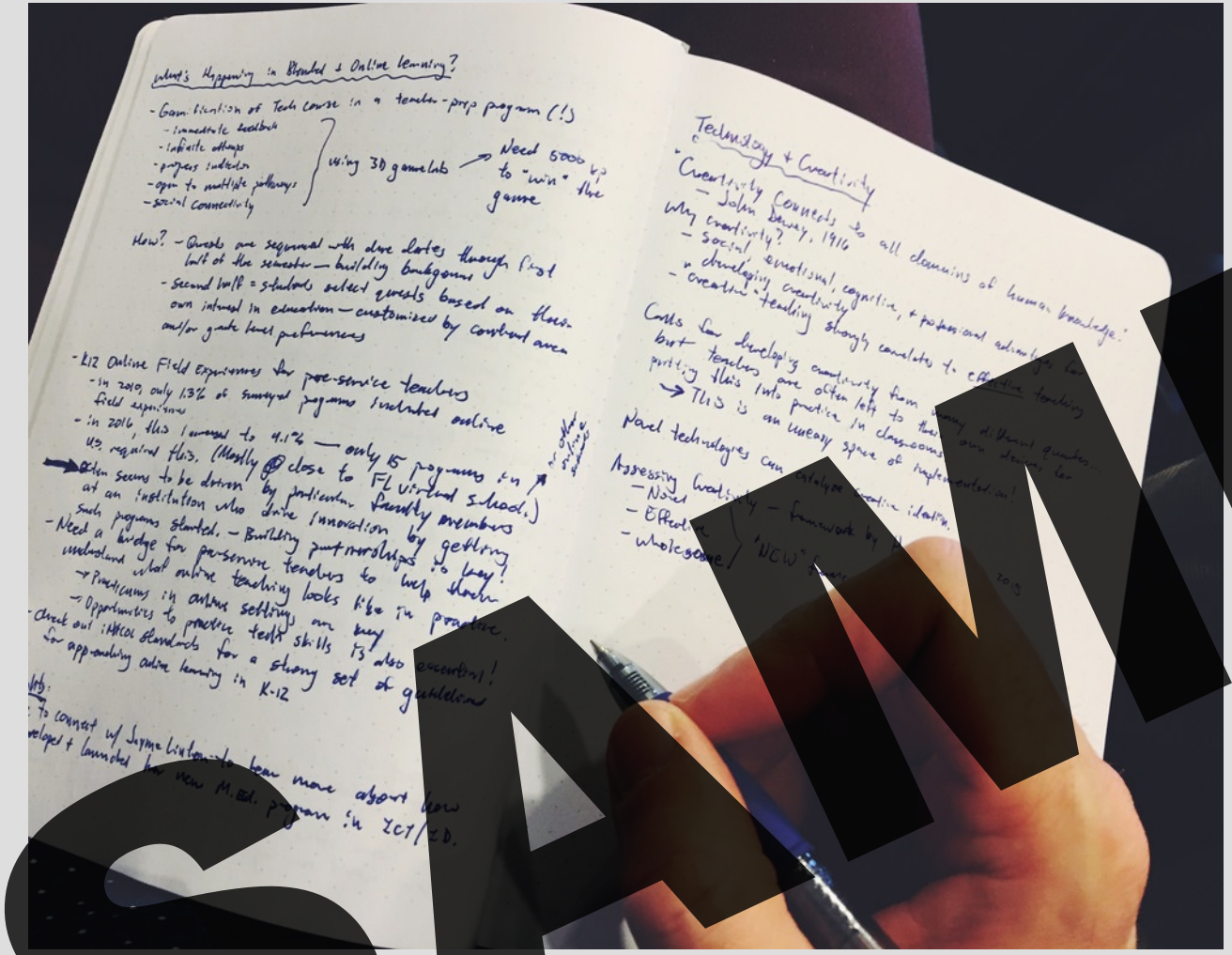
Hazardous substances are materials determined by the EPA to present a potentially serious danger to the environment.

Hazardous chemicals are those that are harmful to people in the workplace or the community if released, as determined by OSHA.

Hazardous materials are those which can present a danger during shipment by truck, rail, air, or water, as determined by the Secretary of Transportation.

Other more specific definitions will be addressed in their corresponding sections throughout the duration of this presentation. For instance, the term **mutagen**, which is a toxicological term, will be defined in the section on toxicology.





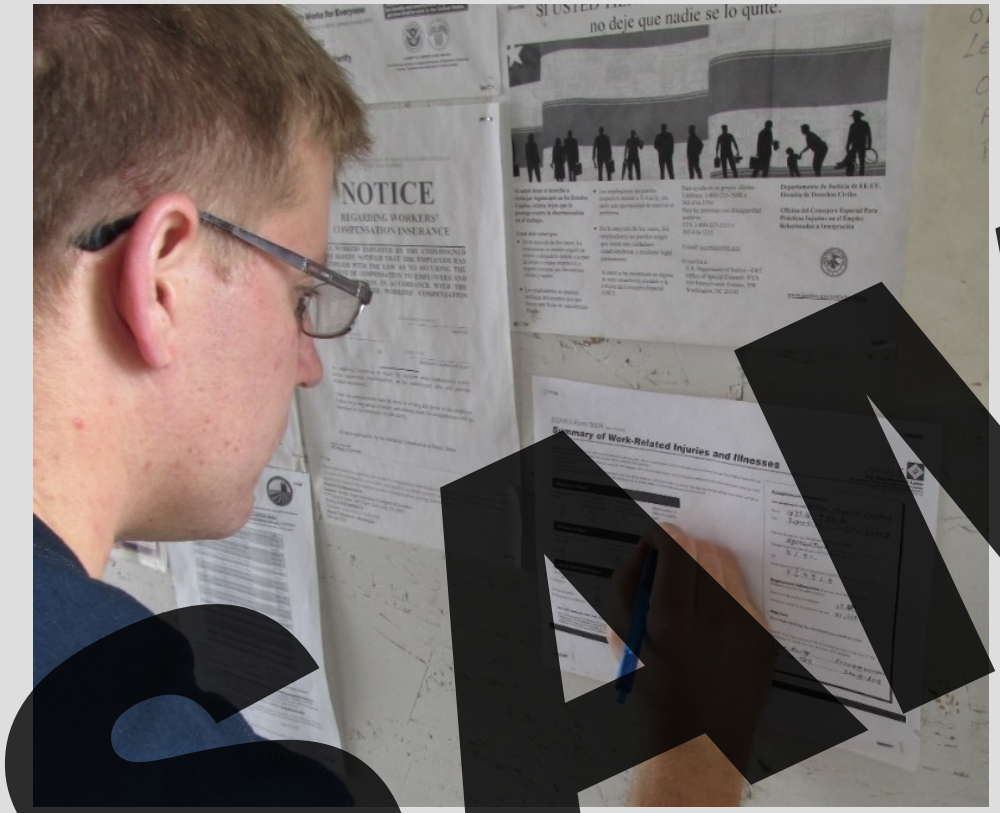
Going Forward

As we navigate the rest of our training, remember that HAZWOPER is meant to protect you, the employee. The more effort you put into understanding HAZWOPER principals, the safer you will be when you're on a worksite. Please feel free to take notes, and take the time needed to fully understand the materials we discuss. Good luck and stay safe!

Regulations & Overview

In this section, we will discuss the importance of government regulations and entities, such as the Occupational Safety and Health Administration (OSHA), the National Institute for Occupational Safety and Health (NIOSH), and the Environmental Protection Agency (EPA). We will discuss why they exist, which industries they regulate, and the standards they put in place.

We will discuss what rights employees have under the OSH Act, as well as their responsibilities. We will also cover employer duties for keeping workers safe.



Regulatory Bodies