

JOB HAZARD ANALYSIS (JHA) GUIDE

A Step-by-Step Guide to Performing an Effective Job Hazard Analysis

This guide to performing a JHA has been created by Convergence Training/RedVector and incorporates suggestions made in *OSHA's Job Hazard Analysis* booklet (OSHA 3071, revised in 2002). You can use it to help you perform JHAs at your worksite.

This guide was originally downloaded from the *Convergence Training blog* and was part of an extensive article on *JHAs*. Check out the Convergence Training blog for more helpful information on safety, safety training, and other training needs: *https://www.convergencetraining.com/blog*.

We also offer an online Job Hazard Analysis training course as part of our EHS training library.

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GETTING READY TO BEGIN A JHA (CHECKLIST)

Before you begin the JHA for a specific job, make sure you've done the following:

Make sure your employees are involved

Pretty much everything related to safety works best when management and employees are both involved. That's true of the JHA process as well. Remember, it's their job, and they probably know it better than you do. This will also help you get their buy-in for this process and for safety in general. Plus, two (or more) sets of eyes are always better than one.

Did you do this? Y/N

Review your history of injuries, illnesses, near misses, and machine/tool damage

Go over your written records of injuries, illnesses, near-misses, and incidents that have required machine/tool replacement or repair. Then, get feedback from your employees, asking if there are things that have occurred but are not in the records (for whatever reason-make it clear you're trying to make work conditions safer, not punish anyone because something hasn't been reported).

Did you do this? Y/N



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Ask your employees which hazards exist in their work area

Ask your employees if they're aware of hazards in their work area. Write them down -you can use this list later when you're performing the JHA.

NOTE: If a serious hazard comes to light at this point, stop what you're doing and correct the problem before you continue with the JHA process.

Did you do this? Y/N

Create a list that prioritizes the jobs you'll perform in a JHA

It's great if you do a JHA for every job, but you should do JHAs for the jobs with the highest risks first. Take the information you've already gathered and prioritize the order in which you'll perform the JHAs.

Did you do this? Y/N

With these steps down, you're now ready to complete the formal JHA process as described in the next section.



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2 COMPLETING A JHA: THE STEPS

STEP 1 - BREAKING THE JOB DOWN INTO STEPS/TASKS

Begin the JHA for a specific job by breaking the job down into the steps or tasks performed while doing the job. Here are some ways to do this:

- Watch an employee performing the job.
- Ask the employee what the various steps are--the employee may have some good insight here, but remember that the employee may leave out some steps because they're "automatic" to him or her.
- Ask other employees who have performed the job to list or review the steps.
- Film the employee while the employee performs the jobs--this will help you identify the steps.

You can write these steps down any way you want. It's common to create a JHA form that represents each task of a given job, plus a description of the task, the hazards, and potential hazard controls. We've included a sample template in the next section of this guide.

STEP 2 - IDENTIFY HAZARDS ASSOCIATED WITH EACH TASK

Identify and list the hazards associated with each task (do one task first, then another, etc.). Consider every possible thing that could go wrong. How could the worker be injured or be made ill? How could machines or equipment be damaged? Ask yourself the following questions:



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- What could go wrong?
- What could cause that thing/those things to go wrong?
- What other factors could contribute to that thing/those things going wrong?
- What would happen if that thing/those things did go wrong?
- How likely is it that that thing/those things will go wrong?

Reviewing the table of hazards listed later in this guide (see section 4) may be very helpful when you're trying to identify hazards.

STEP 3 - WRITE A HAZARD DESCRIPTION

Write a description of the hazard (also called a hazard scenario) in a consistent, orderly manner that will help ensure you will later put in steps to control the hazard and create the best possible controls. A good hazard description should include the following items.

- Environment: where does this hazard exist?
- **Exposure:** who or what might be injured or made ill by this hazard?
- **Trigger:** what event might cause the hazard to lead to an injury or illness?
- **Contributing factors:** are there other factors that might contribute to cause the hazard to lead to an injury or illness?
- Outcome/consequence: what would be the result if the hazard were to occur?



3 COMPLETING A JHA: A TWO-PART TEMPLATE

Use this template, or one of your own, to fill out a JHA. Do Part 1 first to identify each task. Then, complete Part 2 for each task/hazard you identified.

JHA TEMPLATE PART 1: Write down the list of steps or tasks that make up the job

Task 1 -		
Task 2 -		
Task 3 -		
Task 4 -		
Task 5 -		
Task 6 -		
Task 7 -		
Task 8 -		
Task 9 -		
Task 10 -		

JHA TEMPLATE PART 2: Fill in the JHA Form

JOB HAZARD AN	ALYSIS
Job that Task is Part of	
Job Location/Work Area	
JHA Analyst (Name & Title)	
Date of JHA	
Job Task Description	
Hazard Description /Scenario	
Suggested Hazard Controls	
Additional Notes	
Were Hazard Controls Put Into Place? If so, When?	
When should JHA be Reviewed/Revised Again?	
When was JHA Last Reviewed/Revised?	



4 HAZARD LIST

A hazard is something that has the potential to cause harm. Typically, this means something that can cause an injury or illness. Here's a list of many possible types of hazards. Use this list to help you search for hazards associated with each task in a job.

Chemical (toxic): A chemical that exposes a person by absorption through the skin, inhalation, or through the bloodstream that causes illness, disease, or death. The amount of chemical exposure is critical in determining hazardous effects. Check Safety Data Sheets (SDS) and/or OSHA 1910.1000 for chemical hazard information.

Chemical (flammable): A chemical that, when exposed to a heat ignition source, results in combustion. Typically, the lower a chemical's flash point and boiling point, the more flammable the chemical. Check SDS for flammability information.

Chemical (corrosive): A chemical that, when it comes into contact with skin, metal, or other materials, damages the materials. Acids and bases are examples of corrosives.

Explosion (chemical reaction): Explosions caused by chemical reactions.

Explosion (over pressurization): Sudden and violent release of a large amount of gas/energy due to a significant pressure difference, such as rupture in a boiler or compressed gas cylinder.

Electrical (shock/short circuit): Contact with exposed conductors or a device that is incorrectly or inadvertently grounded, such as when a metal ladder comes into contact with power lines. 60Hz alternating current (common house current) is very dangerous because it can stop the heart.

Electrical (fire): Use of electrical power that results in electrical overheating or arcing to the point of combustion or ignition of flammables, or electrical component damage.

Electrical [static/electrostatic discharge (ESD)]: The moving or rubbing of wool, nylon, other synthetic fibers, and even flowing liquids can generate static electricity. This creates an excess or deficiency of electrons on the surface of material that discharges (spark) to the ground resulting in the ignition of flammables or damage to electronics or the body's nervous system.

Electrical (loss of power): Safety-critical equipment failure as a result of loss of power.



Ergonomics (strain): Damage of tissue due to overexertion (strains and sprains) or repetitive motion.

Ergonomics (human error): A system design, procedure, or equipment that tends to lead to human error. (For example, a switch that goes up to turn something off instead of down).

Excavation (collapse): Soil collapse in a trench or excavation as a result of improper or inadequate shoring. Soil type is critical in determining the hazard likelihood.

Fall (slips and trips): Conditions that result in falls (impacts) from height or traditional walking surfaces (like slippery floors, poor housekeeping, uneven walking surfaces, exposed ledges, etc.).

Fire/heat: Temperatures that can cause burns to the skin or damage to other organs. Fires require a heat source, fuel, and oxygen.

Mechanical/vibration (chaffing/fatigue): Vibration that can cause damage to nerve endings, or material fatigue that results in a safety-critical failure. (Examples are abraded slings and ropes, weakened hoses and belts.)

Mechanical failure: Self-explanatory; typically occurs when devices exceed designed capacity or are inadequately maintained.

Mechanical: Skin, muscle, or body part exposed to crushing, caught-between, cutting, tearing, shearing items or equipment.

Noise: Noise levels (>85 dBA 8 hr TWA) that result in hearing damage or inability to communicate safety-critical information.

Radiation (ionizing): Alpha, Beta, Gamma, neutral particles, and X-rays that cause injury (tissue damage) by ionization of cellular components.

Radiation (non-ionizing): Ultraviolet, visible light, infrared, and microwaves that cause injury to tissue by thermal or photochemical means.

Struck-by (mass acceleration): Accelerated mass that strikes the body causing injury or death. (Examples are falling objects and projectiles.)

Struck against: Injury to a body part as a result of coming into contact of a surface in which action was initiated by the person. (An example is when a screwdriver slips.)

Extreme temperatures (hot/cold): Temperatures that result in heat stress, exhaustion, or metabolic slow down such as hypothermia.

Visibility: Lack of lighting or obstructed vision that results in an error or other hazard.

Weather conditions (snow/rain/wind/ice): Self-explanatory.



5 THE HIERARCHY OF HAZARD CONTROLS

Once you've written the hazard descriptions, now it's time to brainstorm some hazard controls so the hazard never really does lead to an injury or illness. Here's the Hierarchy of Controls to help you with this.

When you're considering a list of controls, think of the following, and try to implement them in the order below. In reality, you may have to use several different types of controls to fully control the hazard.

1. Elimination, Minimization, and/or Substitution

If you can remove the hazard entirely, or put some form of substitute in place, do that. That's the best way to deal with a hazard—make it go away. An example would be removing a sharp edge on the corner of a machine so nobody could get cut. This may include:

- Designing or redesigning a facility, equipment, or process to eliminate or minimize the hazard
- Substituting processes, equipment, materials, or other factors to eliminate or minimize the hazard
- Other solutions

2. Engineering Controls

Engineering controls involve re-designing the work area so that the hazard is eliminated or reduced. An example would be enclosing a noisy motor inside a sound-proof box. Engineering controls may include:

- Enclosing the hazard
- Isolating the hazard with interlocks, machine guards, blast shields, welding curtains, or other means
- Removing or redirecting the hazard, such as with exhaust ventilation
- Other solutions

3. Administrative Controls

Administrative controls involve modifying the way people work around a hazard to reduce the risk. An example might be limiting the number of hours someone works lifting heavy boxes from the end of a conveyor belt.

Examples of administrative controls might include:

- Exposure time limits (often used for temperature extremes and ergonomic hazards)
- Monitoring the use of hazardous materials
- Alarms, signs, and warnings
- Buddy systems
- Safety training

4. Personal Protective Equipment (PPE)

PPE can be used to protect people who are working in the presence of hazards. An example would be giving a respirator to someone working near airborne crystalline silica. PPE should only be used as a last resort, once the other forms of controls listed above have been tried. PPE may be used in combination with the other forms of controls, too.



Consider using PPE in these instances:

- When engineering controls aren't feasible
- When engineering controls don't totally remove the hazard
- While engineering controls are being developed
- When safe work practices don't provide sufficient additional protection
- During emergencies when engineering controls may not be feasible



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