

# **JOB HAZARD ANALYSIS (JHA)**

## **INTRODUCTION:**

A job hazard analysis, simply put, is a method to identify existing and/or potential hazards of a job. Each task undergoing a JHA will be studied and each step of the job recorded, so that the entire job process is considered. Hazards (or potential hazards) are then more easily identified, and the best way to reduce or eliminate those hazards can be determined.

## **PRIORITIZATION:**

A JHA can assist in providing early recognition of hazards that may cause an injury or occupational illness, or environmental harm. Although all jobs and tasks should eventually undergo a JHA, any higher hazard jobs should be prioritized to reduce the likelihood of injury or illness.

Jobs where injuries have previously occurred, or have a high frequency of injury, illness, environmental harm or equipment damage, should be first priority.

Second priority would be jobs that have a high potential for accidents due to the frequent use of hazardous materials or equipment, or those that have a history of “near misses”.

Third priority would be new jobs or tasks that involve the introduction of new equipment, tools, chemicals or materials, or that have changes in the process of how to perform the job or have regulations that guide the method in which the job is performed.

## **WHO DOES A JHA?:**

JHAs should be a team effort and normally involve more than one person. However, in a small business setting, two or three people may be sufficient to perform a JHA.

The most experienced person who performs that job should be on the team. This person has the most familiarity with the job, how it is performed, and any hazards associated with the job. Other operators, who may perform the task differently, may also be included, as well as any new operators, who can bring a “fresh set of eyes”, and a different perspective, to the JHA.

Supervisors are usually included, as they may know of potential workplace changes that can affect the job, and can usually provide any funding needed for JHA recommended changes.

Maintenance staff, who service and repair any equipment should be included.

If available, any technical experts (safety, engineers, environmental specialists, etc.) may be included, as they generally have understanding and knowledge of any regulations that may affect the job, and understand how they are implemented.

#### WHERE TO PERFORM A JHA:

At the workplace, where the job is performed is the best place to perform a JHA. By doing the JHA on-site, no steps will be overlooked, and the workplace conditions (lighting, noise, layout, etc.) can be assessed. Recommendations for changes may be more readily implemented, as well. If possible, the team should watch the job being performed so they can understand the sequence of steps and the significance of each step (what is done, in what order, and why).

JHAs can be more limited in scope, as well, and jobs can be reviewed verbally. This is usually done only when the job cannot be performed first, it is not a “routine” job, if it is one part of a larger job sequence, or the workplace conditions are not conducive to observing the job (i.e. dark area, or small workspace).

JHAs can also be performed using video surveillance. By using video, there can be better visibility for team members and the task can be viewed many times, slowed down, or even paused for analyzing hazards. However, employees are frequently uncomfortable being videotaped and the video tape is only from one angle, so some hazards may be overlooked.

#### CONDUCTING THE JHA:

##### List the Basic Job Steps

Nearly every job can be broken down into steps. Each step should be observed by the JHA team. The steps should be discussed, so that everyone understands them, and the reasons the steps are included. The steps should be listed in order of performance. (The JHA form at the end of this module can be used for this, or another form of your choosing.) Action words should be used to describe the steps and they should be numbered sequentially.

Below is an example of making coffee using a drip brew machine. Each of the steps is recorded. There are typically between 3 and 12 steps in a JHA. If there are fewer, then the scope of the JHA is too broad and some hazards may be overlooked. If there are more than 12 steps then the JHA is too detailed, and the JHA team may get “bogged down” with more detail than they need. For example, in the example below, step 1 could be further broken down into 1) walk to the sink 2) Place carafe under faucet, 3) Turn cold water tap on ¼ turn.... That is too detailed and can be simply stated with “Fill carafe with water to the 10 cup line.

##### Basic Job Steps:

1. Fill carafe with water to the 10 cup line
2. Pour water into coffee maker reservoir
3. Place carafe under drip spout
4. Place a single filter in drip basket
5. Measure 10 tablespoons of coffee and place into filter
6. Place filter basket into coffee maker slot
7. Turn coffee maker ON

Determine the Potential Hazards:

Hazards are then determined by asking questions such as:

1. Can the operator receive a strain or sprain due to bending, twisting, lifting while performing any of the steps?
2. Can the operator receive a crushing injury to do be caught in, on or between equipment?
3. Can they receive a burn or irritation due to contact with chemicals, heat, or other physical or biological hazards?
4. Could a chemical or material release occur?

List The Existing and Potential Hazards:

In column 2 of the form, the existing a potential hazards of each step are listed. Each step was previously numbered and any identified hazards or potential hazards take a letter that corresponds to the process step. All hazards should be listed, even when they are repetitive from previous steps. All steps should be accounted for, even if there are no hazards associated with them (in such cases, “No Hazard Identified” can be listed).

Existing and Potential Hazards

- 1a) Laceration from sharp edge if dropped/broken
- 2a) Laceration from sharp edge if dropped/broken
- 2b) Slip from water spilled on floor
- 3a) Laceration from sharp edge if dropped/broken
- 3b) Burn/scald from coffee if brewing is started prematurely
- 4a) No hazards identified
- 5a) Laceration from coffee can (if can is used)
- 6a) Burn/scald from coffee if brewing is started prematurely
- 7a) Potential shock if coffee maker is faulty

Make Recommendations to Reduce/Eliminate or Control Hazards

Where possible, eliminate the hazard, or substitute a non-hazardous material or condition that will achieve quality results. Where hazards can not be eliminated, provide engineering controls (barriers, interlocks, tools, etc.) that can reduce or eliminate hazardous conditions. Administrative control (procedures, training, limit the exposure time, etc) should be applied to the task where elimination and engineering are not feasible. When all the previous controls can not provide hazard reduction, personal protective equipment (PPE) should be considered (i.e., gloves, respirators, specialized clothing, etc.). PPE should be the last control considered. Remember that PPE frequently requires specialized training, cleaning, or maintenance, and records may need to be kept.

Make recommendations for every hazard identified, beginning with the first hazard listed. You can make several recommendations for one hazard, bearing in mind that one or more may not be feasible, cost effective or timely. Number each recommendation in accordance with its hazard (i.e. 1a1, 1a2, 1a3, 2a1, 2a2, etc.).

Recommendations should be specific (what type of gloves, what specific material will be substituted, etc.). Existing controls may already control or eliminate some hazards, be sure to list these, so they do not get changed and make the hazardous situation worse. Where needed, consider that some regulations require specific types of controls to be put in place, and if they are prescribed they may not be the most feasible or economical to implement.

Recommended Corrective Measures:

- 1a1) Use piped in water delivery system
- 1a2) Use unbreakable or break resistant carafe
- 1a3) Use non-slip, cut proof gloves
- 2a1) Use piped in water delivery system
- 2a2) Use unbreakable or break resistant carafe
- 2a3) Use non-slip, cut proof gloves
- 2b1) Use piped in water delivery system
- 2b2) Place non-skid mats on the floor
- 2b3) Relocate coffee pot to area next to sink
- 3a1) Use piped in water delivery system
- 3a2) Use unbreakable or break resistant carafe
- 3a3) Use non-slip, cut proof gloves ....
- 3b1) Written procedure to assure coffee pot is unplugged or in OFF position
- 3b2) Interlock coffee pot so that brewing can not start without carafe in place
- 4a1) No corrective action
- 5a1) Use pre-ground coffee from bags rather than cans
- 5a2) Wear protective gloves when scooping coffee from can
- 5a3) Transpose canned coffee into sealable plastic container
- 6a1) Written procedure to assure coffee pot is unplugged or in OFF position
- 6a2) Interlock coffee pot so that brewing can not start without carafe in place
- 6b1) Have coffee pot inspected frequently for faulty wiring

The following is the completed JHA form for the “Making Coffee with a Drip Brew Maker” task.

**JOB HAZARD ANALYSIS FORM**

Job or Task being evaluated:      Making Coffee with a Drip Brew Maker     

Date of evaluation:   06/14/2004   Page #   1   of   1  

JHA Team participants: Joe Cuppa, I.M. DeBoss

Steps	Potential or Existing Hazards	Corrective Action Recommendations
1) Fill carafe with water to the 10 cup line	1a) Laceration from sharp edge if dropped/broken	1a1) Use piped in water delivery system
		1a2) Use unbreakable or break resistant carafe
		1a3) Use non-slip, cut proof gloves
2) Pour water into coffee maker reservoir	2a) Laceration from sharp edge if dropped/broken	2a1) Use piped in water delivery system
		2a2) Use unbreakable or break resistant carafe
		2a3) Use non-slip, cut proof gloves
	2b) Slip from water spilled on floor	2b1) Use piped in water delivery system
		2b2) Place non-skid mats on the floor
2b3) Relocate coffee pot to area next to sink		
3) Place carafe under drip spout	3a) Laceration from sharp edge if dropped/broken	3a1) Use piped in water delivery system
		3a2) Use unbreakable or break resistant carafe
		3a3) Use non-slip, cut proof gloves ....
	3b) Burn/scald from coffee if brewing is started prematurely	3b1) Written procedure to assure coffee pot is unplugged or in OFF position
		3b2) Interlock coffee pot so that brewing can not start without carafe in place
4) Place a single filter in drip basket	4a) No hazards identified	4a1) No corrective action
5) Measure 10 tablespoons of coffee and place into filter	5a) Laceration from coffee can (if can is used)	5a1) Use pre-ground coffee from bags rather than cans
		5a2) Wear protective gloves when scooping coffee from can
		5a3) Transpose canned coffee into sealable plastic container
6) Place filter basket into coffee maker slot	6a) Burn/scald from coffee if brewing is started prematurely	6a1) Written procedure to assure coffee pot is unplugged or in OFF position
		6a2) Interlock coffee pot so that brewing can not start without carafe in place
7) Turn coffee maker ON	7a) Potential shock if coffee maker is faulty	7a1) Have coffee pot inspected frequently for faulty wiring

## EXAMPLE 2 - Swing Grinder

The following picture details a swing grinding operation.



Based on what is shown in the picture, follow the steps to complete a JHA.

The first step is to list the tasks involved in the swing grinding operation.

1. Remove any potential fire hazards and combustibles from the area
2. Inspect the grinder to assure it is in good operating condition
3. Assure all castings and materials to be ground are accessible, but out of way of any direct hazards
4. Double check the grinding wheel to assure is it the proper size and strength to perform the operation
5. Put on Personal Protective Equipment
6. Turn grinder on
7. Grind castings

The second step of the JHA is to ask the questions about existing or potential hazards. Noise, Fire, body strain, burns, vibration, dust, fumes, light, flying particles are just a few hazards that are apparent from the picture. Each of these hazards is associated with one

or more of the steps involved in the swing grinding operation. They should be listed and numbered accordingly:

- 1a) Body strain from lifting/twisting
- 1b) Potential fire if materials are not moved
- 2a) Operator getting caught in a pinch point
- 2b) Body strain from lifting grinder
- 2c) Dust or particles in eye from previous activity or unkempt workplace
- 2d) Potential for breaking grinding wheel if inspection is not performed or performed improperly
- 3a) Wasted energy to start and stop grinder if materials are not accessible
- 3b) Potential fire or tripping hazard if materials are in the way.
- 4a) Potential to break grinding wheel if improper size or type for operation
- 5a) Hearing loss from excessive noise
- 5b) Burns from grinding dust and sparks
- 5c) Body strain from lifting, movement while grinding and/or vibration
- 5d) Dust or particles in eye
- 6a) Potential for breaking grinding wheel if inspection is not performed or performed improperly
- 7a) Body strain from lifting/twisting
- 7b) Potential fire if materials are not moved
- 7c) Operator getting caught in a pinch point, or laceration from contact with grinding surface
- 7d) Dust or particles in eye from previous activity or unkempt workplace
- 7e) Potential for breaking grinding wheel if inspection is not performed or performed improperly
- 7f) Wasted energy to start and stop grinder if materials are not accessible
- 7g) Potential fire or tripping hazard if materials are in the way.
- 7h) Hearing loss from excessive noise
- 7i) Burns from grinding dust and sparks
- 7j) Body strain from lifting, movement while grinding and/or vibration
- 7k) Dust or particles in eye

The next step is to make the recommendations to reduce or eliminate the existing or potential hazards:

- 1a1) Assure operator is trained in how to lift/twist without injury
- 1a2) Assure operator has the strength/capability of operating the grinder
- 1b1) Have a checklist or other system to assure materials are moved to their correct distance or location. The operator must check off the items on the list prior to beginning the operation.
- 1b2) Assure that materials to be ground are in non-combustible containers
- 2a1) Assure that pinch points are properly guarded
- 2a2) Assure that operator is aware of where pinch points are
- 2b1) Assure operator is trained in how to lift/twist without injury
- 2b2) Assure operator has the strength/capability of operating the grinder
- 2c1) Assure proper eye protection (full face shield or welding mask)

2c2) Assure housekeeping is performed after each grinding operation, as needed between grinding operations and as needed during grinding operations to reduce or eliminate dust from area

2d1) Assure operator or other appropriate individual performs appropriate inspection(s) prior to each grinding operation or weekly, whichever is more frequent. (The inspection can be part of the checklist in 1b1.)

3a1) Have a checklist or other system to assure materials are moved to their correct distance or location. The operator must check off the items on the list prior to beginning the operation.

3b1) Have a checklist or other system to assure materials are moved to their correct distance or location. The operator must check off the items on the list prior to beginning the operation.

3b2) Assure appropriate fire protection systems are in place and operational

4a1) Assure operator or other appropriate individual performs appropriate inspection(s) prior to each grinding operation or weekly, whichever is more frequent. (The inspection can be part of the checklist in 1b1.)

4a2) Assure proper eye protection (full face shield or welding mask)

5a1) Assure proper hearing protection is used by operator and any other exposed people

5a2) Assure noise levels require hearing protection

5a3) Assure grinder is operating at appropriate velocity and parts are properly secured to reduce vibration, noise and potential for breakage

5b1) Assure proper clothing (long pants, long sleeve shirts, leggings and/or protective sleeves, and gloves) are worn during operation

5c1) Assure operator is trained in how to lift/twist without injury

5c2) Assure operator has the strength/capability of operating the grinder

5c3) Assure grinder is operating at appropriate velocity and parts are properly secured to reduce vibration.

5d1) Assure proper eye protection (full face shield or welding mask)

5d2) Assure housekeeping is performed after each grinding operation, as needed between grinding operations and as needed during grinding operations to reduce or eliminate dust from area.

6a1) Assure operator or other appropriate individual performs appropriate inspection(s) prior to each grinding operation or weekly, whichever is more frequent. (The inspection can be part of the checklist in 1b1.)

6a2) Assure grinder is operating at appropriate velocity and parts are properly secured to reduce vibration.

7a1) Assure operator is trained in how to lift/twist without injury

7a2) Assure operator has the strength/capability of operating the grinder

7b1) Have a checklist or other system to assure materials are moved to their correct distance or location. The operator must check off the items on the list prior to beginning the operation.

7b2) Assure appropriate fire protection systems are in place and operational.

7b3) Assure housekeeping is performed after each grinding operation, as needed between grinding operations and as needed during grinding operations to reduce or eliminate dust from area.

- 7c1) Assure that pinch points are properly guarded.
- 7c2) Assure that operator is aware of where pinch points are.
- 7c3) Assure that proper protective clothing (long pants, long sleeve shirts, leggings and/or protective sleeves, and gloves) are worn during operation.
- 7d1) Assure proper eye protection (full face shield or welding mask)
- 7d2) Assure housekeeping is performed after each grinding operation, as needed between grinding operations and as needed during grinding operations to reduce or eliminate dust from area.
- 7e1) Assure operator or other appropriate individual performs appropriate inspection(s) prior to each grinding operation or weekly, whichever is more frequent. (The inspection can be part of the checklist in 1b1.)
- 7e2) Assure grinder is operating at appropriate velocity and parts are properly secured to reduce vibration, noise and potential for breakage.
- 7e3) Assure grinding wheel is properly guarded.
- 7e4) Assure materials are properly secured during grinding.
- 7f1) Have a checklist or other system to assure materials are moved to their correct distance or location. The operator must check off the items on the list prior to beginning the operation.
- 7g1) Have a checklist or other system to assure materials are moved to their correct distance or location. The operator must check off the items on the list prior to beginning the operation.
- 7h1) Assure proper hearing protection is used by operator and any other exposed people.
- 7h2) Assure noise levels require hearing protection
- 7h3) Assure grinder is operating at appropriate velocity and parts are properly secured to reduce vibration, noise and potential for breakage.
- 7i1) Assure that proper protective clothing (long pants, long sleeve shirts, leggings and/or protective sleeves, and gloves) are worn during operation.
- 7i2) Assure proper eye protection (full face shield or welding mask)
- 7i3) Assure housekeeping is performed after each grinding operation, as needed between grinding operations and as needed during grinding operations to reduce or eliminate dust from area.
- 7i4) Assure proper eye protection (full face shield or welding mask)
- 7j1) Assure grinder is operating at appropriate velocity and parts are properly secured to reduce vibration, noise and potential for breakage.
- 7j2) Assure operator is trained in how to lift/twist without injury
- 7j3) Assure operator has the strength/capability of operating the grinder
- 7k1) Assure proper eye protection (full face shield or welding mask)
- 7k2) Assure housekeeping is performed after each grinding operation, as needed between grinding operations and as needed during grinding operations to reduce or eliminate dust from area.

All this information should be placed on the JHA form in the appropriate space. The end result will look like this:

**JOB HAZARD ANALYSIS FORM**

Job or Task being evaluated: Swing Grinding Operation

Date of evaluation: July, 2004

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JHA Team participants: Jim Grinder, I.M. DeBoss

<b>Steps</b>	<b>Potential or Existing Hazards</b>	<b>Corrective Action Recommendations</b>
1. Remove any potential fire hazards and combustibles from the area	1a) Body strain from lifting/twisting	1a1) Assure operator is trained in how to lift/twist without injury 1a2) Assure operator has the strength/capability of operating the grinder
	1b) Potential fire if materials are not moved	1b1) Have a checklist or other system to assure materials are moved to their correct distance or location. The operator must check off the items on the list prior to beginning the operation.
		1b2) Assure that materials to be ground are in non-combustible containers
	2. Inspect the grinder to assure it is in good operating condition	2a) Operator getting caught in a pinch point
2b) Body strain from lifting grinder		2b1) Assure operator is trained in how to lift/twist without injury 2b2) Assure operator has the strength/capability of operating the grinder
		2c) Dust or particles in eye from previous activity or unkempt workplace
2d) Potential for breaking grinding wheel if inspection is not performed or performed improperly		
3. Assure all castings and materials to be ground are accessible, but out of way of any direct hazards		3a) Wasted energy to start and stop grinder if materials are not accessible
	3b) Potential fire or tripping hazard if materials are in the way.	3b1) Have a checklist or other system to assure materials are moved to their correct distance or location. The operator must check off the items on the list prior to beginning the operation.
		3b2) Assure appropriate fire protection systems are in place and operational.

4. Double check the grinding wheel to assure is it the proper size and strength to perform the operation	4a) Potential to break grinding wheel if improper size or type for operation	4a1) Assure operator or other appropriate individual performs appropriate inspection(s) prior to each grinding operation or weekly, whichever is more frequent. (The inspection can be part of the checklist in 1b1.)	
		4a2) Assure proper eye protection (full face shield or welding mask)	
5. Put on Personal Protective Equipment	5a) Hearing loss from excessive noise	5a1) Assure proper hearing protection is used by operator and any other exposed people.	
		5a2) Assure noise levels require hearing protection	
		5a3) Assure grinder is operating at appropriate velocity and parts are properly secured to reduce vibration, noise and potential for breakage.	
	5b) Burns from grinding dust and sparks	5b1) Assure proper clothing (long pants, long sleeve shirts, leggings and/or protective sleeves, and gloves) are worn during operation.	
		5c) Body strain from lifting, movement while grinding and/or vibration	5c1) Assure operator is trained in how to lift/twist without injury
			5c2) Assure operator has the strength/capability of operating the grinder
	5d) Dust or particles in eye	5c3) Assure grinder is operating at appropriate velocity and parts are properly secured to reduce vibration.	
		5d1) Assure proper eye protection (full face shield or welding mask)	
5d2) Assure housekeeping is performed after each grinding operation, as needed between grinding operations and as needed during grinding operations to reduce or eliminate dust from area.			
6. Turn grinder on	6a) Potential for breaking grinding wheel if inspection is not performed or performed improperly	6a1) Assure operator or other appropriate individual performs appropriate inspection(s) prior to each grinding operation or weekly, whichever is more frequent. (The inspection can be part of the checklist in 1b1.)	
		6a2) Assure grinder is operating at appropriate velocity and parts are properly secured to reduce vibration.	
7. Grind castings	7a) Body strain from lifting/twisting	7a1) Assure operator is trained in how to lift/twist without injury	
		7a2) Assure operator has the strength/capability of operating the grinder	
	7b) Potential fire if materials are not moved	7b1) Have a checklist or other system to assure materials are moved to their correct distance or location. The operator must check off the items on the list prior to beginning the operation.	
		7b2) Assure appropriate fire protection systems are in place and operational.	
		7b3) Assure housekeeping is performed after each grinding operation, as needed between grinding operations and as needed during grinding operations to reduce or eliminate dust from area.	

( 7. Grind Castings, Continued)	7c) Operator getting caught in a pinch point, or laceration from contact with grinding surface	7c1) Assure that pinch points are properly guarded.
		7c2) Assure that operator is aware of where pinch points are.
		7c3) Assure that proper protective clothing (long pants, long sleeve shirts, leggings and/or protective sleeves, and gloves) are worn during operation.
	7d) Dust or particles in eye from previous activity or unkempt workplace	7d1) Assure proper eye protection (full face shield or welding mask)
		7d2) Assure housekeeping is performed after each grinding operation, as needed between grinding operations and as needed during grinding operations to reduce or eliminate dust from area.
	7e) Potential for breaking grinding wheel if inspection is not performed or performed improperly	7e1) Assure operator or other appropriate individual performs appropriate inspection(s) prior to each grinding operation or weekly, whichever is more frequent. (The inspection can be part of the checklist in 1b1.)
		7e2) Assure grinder is operating at appropriate velocity and parts are properly secured to reduce vibration, noise and potential for breakage.
		7e3) Assure grinding wheel is properly guarded.
		7e4) Assure materials are properly secured during grinding.
	7f) Wasted energy to start and stop grinder if materials are not accessible	7f1) Have a checklist or other system to assure materials are moved to their correct distance or location. The operator must check off the items on the list prior to beginning the operation.
	7g) Potential fire or tripping hazard if materials are in the way.	7g1) Have a checklist or other system to assure materials are moved to their correct distance or location. The operator must check off the items on the list prior to beginning the operation.
	7h) Hearing loss from excessive noise	7h1) Assure proper hearing protection is used by operator and any other exposed people.
		7h2) Assure noise levels require hearing protection
		7h3) Assure grinder is operating at appropriate velocity and parts are properly secured to reduce vibration, noise and potential for breakage.
	7i) Burns from grinding dust and sparks	7i1) Assure that proper protective clothing (long pants, long sleeve shirts, leggings and/or protective sleeves, and gloves) are worn during operation.
		7i2) Assure proper eye protection (full face shield or welding mask)
		7i3) Assure housekeeping is performed after each grinding operation, as needed between grinding operations and as needed during grinding operations to reduce or eliminate dust from area.
		7i4) Assure proper eye protection (full face shield or welding mask)

(7. Grind Castings, continued)	7j) Body strain from lifting, movement while grinding and/or vibration	7j1) Assure grinder is operating at appropriate velocity and parts are properly secured to reduce vibration, noise and potential for breakage.
		7j2) Assure operator is trained in how to lift/twist without injury
		7j3) Assure operator has the strength/capability of operating the grinder
	7k) Dust or particles in eye	7k1) Assure proper eye protection (full face shield or welding mask)
		7k2) Assure housekeeping is performed after each grinding operation, as needed between grinding operations and as needed during grinding operations to reduce or eliminate dust from area.

## JHA COMPLETION

Supervisors or managers, and/or the JHA team are responsible for:

1. Verifying the JHA steps and the viability of recommendations
2. Selecting those corrective actions that will be implemented
3. Tracking corrective actions to assure they are completed
4. Ensuring corrective actions provide the appropriate level of safety and that they do not create additional hazards
5. Determining if procedures, checklists, training, etc require updating based on the recommended corrective actions.

## SUMMARY

JHAs can be useful tools, especially when hazards may not be easily identifiable. By performing JHAs, a company can improve its safety performance, potentially reduce operating costs and keep employees involved in the safety process.

