	GENERAL SAFETY RULES	DOC. NO : SR/COM/01 ISSUE NO : 1 PAGE : 1 of 1 REV. NO : 0

GENERAL SAFETY RULES:

1. Wear safety shoes while inside the operational area.
2. Usage of mobile phones inside the shop floor is prohibited (Except cabin and other earmarked places)
3. Materials/components should be kept only in designated areas as per defined standards.
4. Use the designated walkways for walking inside the premises.
5. Visitors are not allowed to enter areas other than permitted
6. Smoking inside the Factory is prohibited (Except rest shed)
7. Consuming alcohol, Gudka and Paan inside the premises is prohibited.
8. Do not obstruct or block aisles or roadways or access to safety and fire protection equipment.
9. Do not carryout activities like gas cutting, grinding, welding and any work which causes spark, near inflammable materials / paint plant / polishing area.
10. During emergency, assemble in a specified nearest safe assembly point.
11. All incidents (including Near miss) must be reported
12. Only authorized / trained person should operate machines / equipments.
13. For every job / operation, Standard Operating Procedure should be followed.

NOV 2013	REVIEWED & APPROVED:	RELEASED:

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	JOB SAFETY ANALYSIS PROCEDURE	DOC. NO. : SP/PPS/02 ISSUE NO. : 1 PAGE : 1 of 7 REV. NO. : 0

1. OBJECTIVE:

The objective of this procedure is to provide instruction on how to perform a Job Safety Analysis (JSA) for an operation with multiple steps of activities and develop safe procedure for performing the operation

2. SCOPE:

All operations that have caused frequent injuries or serious injuries or have potential for severe injury that have been identified as high risk in the list of activities, or new jobs.

For routine jobs JSA shall be done once.

For non-routine jobs JSA shall be done every time the job is done and shall be attached with "work permit".

3. RESPONSIBILITY:

Preparing JSA : Methods Engineer / Supervisor
Review : Functional Head
Approval : Unit head

4. DEFINITION:

a. JSA:

Job Safety Analysis - A step-by-step examination of an operating procedure for the purpose of identifying hazards and reducing or eliminating the exposure to these hazards through mitigating steps.

b. Potential Safety Hazard:

A situation or condition that can cause injury to personnel or equipment.

c. Operation:

A specified action, or set of actions, performed by person(s) to complete a job. This job shall involve multiple steps called activities.

Example:

Operation : Flash butt welding of a wheel rim
Activity : Loading the band into the machine

d. Hazard:
An adverse situation, a condition that presents danger to personnel and equipment.

Example:
Flashing burr falling into operator's eye causing an injury in flash butt welding operation.

e. Exposure:
Subject to the influence or vulnerability of an adverse condition.

Example:
Inhalation of welding fumes

f. Control:
To exercise direction or influence over the hazard.

4. INTRODUCTION:

Job-related injuries occur every day in the workplace if employees are not trained in the proper job procedure.

One way to prevent workplace injuries is to establish proper job procedures and train all employees in safer and more efficient work methods.

Establishing proper job procedures is one of the benefits of conducting a JSA. Carefully studying and recording each step of a job, identifying existing or potential job hazards, and determining the best way to perform the job or to reduce or eliminate these hazards.

This Procedure explains what a JSA is and contains guidelines for conducting step-by-step analysis. A sample of a completed JSA is included at the back of this procedure.

JSAs evaluate Standard Operating Procedures (SOP), from a safety standpoint, for accuracy and completeness. Individual procedure steps are analyzed to see if all the safeguards are in place to adequately protect personnel, assuming they follow the procedure.

The goal of a JSA is to provide a safe work procedure. This is accomplished by:

- Describing operating procedure steps
- Identifying potential safety hazards associated with these procedures steps, and
- Specifying administrative controls that eliminate or greatly reduce exposures to the identified hazards.

Administrative controls needed to lower the risk to an acceptable level are noted. This examination and improvement method is based on the premise that all hazards are controllable and all accidents are preventable. Engineering controls if defective shall be fulfilled & implemented and JSA shall be done again.

Frequency: Perform a JSA for every new or modified standard operating procedure (SOP) that has a high identifiable risk. Also perform a JSA, when needed, to ensure SOP provides instructions on how to accomplish a task in the safest manner.

5. Procedure:

The first step is to list all activity in plant and assess the severity of the job

5.1 Conducting the JSA:

Begin by doing JSA of high severity activities. Before actually beginning the JSA, take a look at the general conditions under which the job is performed and develop a checklist. Below are some sample questions you might ask.

- Are there materials on the floor that could trip a worker?
- Is lighting adequate?
- Are there any live electrical hazards at the job site?
- Are there any chemical, physical hazards associated with the job or likely to develop?
- Are tools including hand tools, machines, and equipment in need of repair?
- Is there excessive noise in the work area, hindering worker communication?
- Are job procedures known and are they followed or modified?
- Are emergency exits clearly marked?
- Are trucks or motorized vehicles properly equipped with brakes, overhead guards, backup signals, horns, steering gear, and identification, as necessary?
- Are all employees operating vehicles and equipment properly trained and authorized?
- All PPE's identified for the Job?

- Are employees wearing proper PPEs for the jobs they are performing?
- Is ventilation adequate, especially in confined or enclosed spaces?
- Have tests been made for oxygen deficiency and toxic fumes in confined spaces before entry?
- Are employees trained in the event of a fire?

Naturally this list is by no means complete because each worksite has its own requirements and environmental conditions. You should add your own questions to the list. You also might take photographs of the workplace, if appropriate, for use in making a more detailed analysis of the work environment.

5.2 Breaking down the Job:

Nearly every job can be broken down into activities. In the first part of the JSA, list each step of the job in order of occurrence as you watch the employee performing the job.

Be sure to record enough information to describe each job action, but do not make the breakdown too detailed. Later, go over the job steps with the employee.

5.3 Identify Hazards

After you have recorded the job steps, next examine each step to determine the hazards that exist or that might occur. Ask yourself these kinds of questions.

1) Are there hazards that would require the use of personal protective clothing and equipment / tools that are appropriate for the job?
2) Are work positions, machinery, pits or holes, and hazardous operations adequately guarded?
3) Are lockout procedures used for machinery deactivation as required?
4) Is the worker wearing clothing or jewelry, or have long hair that could get caught in the machinery or otherwise cause a hazard?
5) Are there fixed objects that may cause injury, such as sharp edges?
6) Is the flow of work organized (e.g., Is the worker required to make movements that are too rapid)?
7) Can the worker get caught in or between moving parts?
8) Can the worker be injured by reaching over moving machinery parts or materials?
9) Is the worker at any time in an off-balance position?
10) Is the worker positioned to the machine in a way that is potentially dangerous?

11) Is the worker required to make movements that could lead to or cause hand or foot injuries, or strain from lifting the hazards of repetitive motions?
12) Can the worker be struck by an object or lean against or strike a machine part of object?

13) Can the worker fall from one level to another?
14) Can the worker be injured from lifting or pulling objects, or from carrying heavy objects?

15) Do environmental hazards (dust, chemicals, radiation, welding rays, heat, or excessive noise) result from the performance of the job?
16) Can fire/explosion/exposure etc. happen?

Naturally this list is by no means complete because each worksite has its own requirements and environmental conditions. You should add your own questions to the list. You also might take photographs of the workplace, if appropriate, for use in making a more detailed analysis of the work environment.

5.4 Recommending Safe Procedures and Protection

After you have listed each hazard or potential hazard and have reviewed them with the employee performing the job, determine whether the job could be performed in another way to eliminate the hazards, such as combining steps or changing the sequence, or whether safety equipment and precautions are needed to control the hazards. An alternative or additional procedure is to videotape the worker performing his or her job and analyze the job procedures.

If safer and better job steps can be used, list each new step, such as describing a new method for disposing of material. List exactly what the worker needs to do to perform the job using new method. Do not make general statements about the procedure, such as "Be Careful or use appropriate PPE/ tools." Be as specific as you can in your recommendations.

You shall set up a training program using the JSA to retrain your employees in the new procedures, especially if they are working with highly toxic substances or in hazardous situations.

If no new safe procedure can be developed for the given condition, determine whether any physical changes such as redesigning equipment, changing tools, adding machine guards, PPE, or ventilation will eliminate or reduce the danger. All these changes need to be made and then JSA should be done along with operator to establish the working procedure.

Go over the recommendations with all employees performing the job. Their ideas about the hazards and proposed recommendations may be valuable. Be sure that they understand what they are required to do and the reasons for the changes in the job procedures.

6.0 Fill in the JSA form using the following as a guide:

1. The first column, **"Sequence of Basic Job Steps"** lists the sequential steps that are required to start & complete an operation. This should be a non-trivial hazard that presents a real danger to personnel safety and equipment safety.

Note: Column 1 should be filled completely before proceeding to column 2.

2.The second column, **"Potential Hazards,"** describes the hazards that are presented against each step in the 1st column; each of these hazards must be written separately in each row.

Typical hazards are fire, explosion, exposure, slip, trip, fall of component, crush and cut injury to fingers etc. that can directly affect the operator.

3. The Third column **"Recommended Safe Procedure"** describes the safety steps to be performed by operator. This may come from MSDS if use of chemical, machine manual if working on machine, manufacturer recommendations, best practices of working, using standards industrial practices etc.

7. Revising the JSA:

A JSA can do much toward reducing accidents and injuries in the workplace, but it is only effective if it is reviewed and updated periodically.
A JSA should be reviewed & revised due to any one condition of the following:

- Any change in technology/ Process.
- Even if no changes have been made in a job, hazards that were missed in an earlier analysis could be detected.
- If an injury occurs on a specific job, the job safety analysis should be reviewed immediately to determine whether changes are needed in the job procedure.
- In addition, if a close call or near miss has resulted from an employee's failure to follow job procedures/steps missed out, JSA shall be reviewed & redone.
- Any time a job hazard analysis is revised, training in the new job methods, procedures, or protective measures should be provided to all employees affected by the changes.

A JSA also can be used to train effectively new employees on the steps and job hazards.

8. ANNEXURE :

Completed JSA template.

Job Safety Analysis	Job : Flash Cutting	Date : 13/09/2013
	Prepared by : M.Srinivasan	Reviewed by : G.Karunagaran
Title of employee doing job : Operator	Approved by : E.N.Sundaresan	Unit & Line : CV - NRP
Required / Recommended PPE : Ear Plug, Safety Shoes, Safety Goggle, Safety Helmet, 16" asbestos Gloves, Apron, Dust mask, Leg Pad		

Sequence of Basic Job Steps	Potential Hazards	Recommended Safe Job
1. Put on PPE	Exposure to heat due to PPE (Gloves) in poor condition	Inspect PPE and look for holes/tears in gloves
2. a.Press the stopper releasing button on the left hand side to receive the welded band. b.Release the button so that the stopper holds the next band.	Rim band in hot condition may fall on operator's hand or leg due to malfunction of Stopper in Chute	Check the working condition of stopper
3. Remove the extra weld flash by a hammering it (by a rod)	Flash may fly away and can injure operator	Use Apron & Safety Googles
4. Load the band into machine	Operator may hit his head in the machine frame	Use Safety Helmet
5. Start the trimming operation by pressing double hand switch	Free hand may get caught between machine slides	Check the working condition of Double Hand Switch.
6. Unload the band	Nil	Nil
7. Sweep the trimmed flash inside the band after flash cutting with hand	Flash in hot condition may injure operator	Use asbestos gloves
8. Move the band to incoming chute of JFRC	Nil	Nil
9. Remove the flash which sticks with insert by using file.	Flash may fly away and can injure operator	Use Apron & Safety Googles