

JOB SAFETY ANALYSIS ON POWER PRESS MACHINE

Manoj Khanna R¹, Muthukumar K², Jishin Jayan T³

¹PG Student, Industrial Safety Engineering, Department of Mechanical Engineering, BIT, Sathyamangalam

²Professor, Industrial Safety Engineering, Department of Mechanical Engineering, BIT, Sathyamangalam

³Assistant Professor, Industrial Safety Engineering, Department of Mechanical Engineering, BIT, Sathyamangalam

ABSTRACT: Modern mishaps have been reliably expanded as far as clinical expenses, lost work days, and occurrence rates consistently. Since the foundation of the business changed quickly. The circumstance is particularly serious in Power press machines. To control the present circumstance we really want to secure the risk by position wellbeing examination (JSA). This pattern is to recognize every one of the potential risks implied in a work and can prompt mishaps. It manages compelling security the executives execution utilizing Job Safety Analysis.

Keywords: costs, industry, hazard, safety, trend and analysis.

1. INTRODUCTION

A job safety analysis (JSA) is a procedure which helps integrate accepted safety and health principles and practices into a particular task or job operation. In a JSA, each basic step

describe this procedure are job hazard analysis (JHA) and job hazard breakdown.

2. JOB SAFETY ANALYSIS (JSA)

A few people like to grow the examination into all parts of the gig, not simply security. This methodology is known as absolute work examination. System depends on the possibility that security is an indispensable piece of each work and not a different substance. In this record, just wellbeing and security perspectives will be thought of.

The expressions "work" and "undertaking" are regularly utilized reciprocally to mean a particular work task, for example, "working a processor," "utilizing a compressed water quencher," or "replacing a punctured tire." JSAs are not reasonable for occupations characterized too comprehensively, for instance, "upgrading a motor"; or as well narrowly, for example, "positioning car jack."

| Job Title: MACHINE OPERATOR Page: 1 | | JSA No. 101 | Date: 7-12-2021 | <input checked="" type="checkbox"/> New <input type="checkbox"/> Revised |
|---|---|--|-----------------|---|
| Equipment: HYDRAULIC PRESS BRAKE Supervisor: Manoj Khanna R | | Analysis by: Manoj Khanna R and Sakthi, Operator | | |
| Department: Press Shop Approved by: Aravindhan | | Required Personal Protective Equipment (PPE): Heavy gloves, Kevlar sleeves, safety glasses w/side shields, safety shoes | | |
| JOB STEPS | POTENTIAL HAZARDS | RECOMMENDED SAFE JOB PROCEDURES | | |
| 1. Turn on press brake | Parts: tools, debris, electric shock Inside/outside press brake, floor area Flying pieces/slip, trip, fall | Good housekeeping; check area is clear of tools, parts, debris. Check flex cords for damage and exposed wiring. Wear PPE. | | |
| 2. Test 2-hand controls | Point of operation Crush or amputation Finger, hand | Check operating selector - single stroke. Test controls-concurrent, anti-tie-down, anti-repeat, no bridging, protected from accidental activation. Test stop control. | | |
| 3. Bolster adjustment | A winch and cable assembly support the bolster when the support pins are not in place. Failure to follow bolster adjustment instructions may result in injury or death. | Keep hands, feet, legs, etc. Out from under bolster. Accidental slippage can result in personal injury. To prevent accidental slippage, all bolster support pins must be in place and all cables slack before placing a work piece on the press bed or starting a pressing operation. To prevent accidental cable breakage, never raise or lower the bolster if a load has been placed on it. When lowering the bolster, remove the work piece. Place one support pin all the way through each front and the back upright in the highest hole under the bolster that will not interfere with the new bolster position. Remove your hands from the support pins after the pins are in place. When raising the bolster, remove the work piece. Leave the support pins in place until the bolster is raised to its new position. Remove your hands from the support after the pins are in place. Inspect the entire length of the lifting cables at least every three months and replace cables that appear frayed, worn or crushed. The cables must run on the pulleys easily and the pulleys must be free to turn. Correct cable maintenance helps prevent accidental cable breakage. | | |

Fig 1- Job Safety Analysis form

of the job is to identify potential hazards and to recommend the safest way to do the job. Other terms used to

2.1. Benefits of JSA

One of the strategies utilized in this model is to notice a laborer really play out the gig. The significant benefits of this strategy incorporate that it doesn't depend on individual memory and that noticing or playing out the cycle prompts

for introductory work preparing and as a preparation guide for rare positions. It very well might be utilized as a norm for wellbeing and security examinations or perceptions. Specifically, a JSA will help with finishing thorough mishap examinations.

| | | |
|--|---|---|
| 4. Unloading the steel pack | Contact with sharp edges of plates, Loss of control of heavy material or equipment as it is lifted and being moved Lacerations, abrasions Leg fracture | Personnel involved in the moving of steel plate must be properly trained, the steel pack not higher than the eye level. |
| 5. Taking the piece and placing it in the die | Contact with sharp edges cause cuts and bruises, Got stuck by the press and cause hand amputation. | To consider type, weight, oil coated availability of personnel, lifting operations, safe system(s) of work, supervision arrangements. Guarding against danger barrier guards, two-hand tripping devices or electronic safety devices. |
| 6. Removing the formed part(350mm diameter) and placing it in the conveyor | Contact with sharp edges cause cuts and bruises, Fractures and bruises caused by being struck by materials or by being caught in pinch points, Strains and sprains from lifting loads improperly. | Place securely in conveyors. Wear proper PPE like Kevlar sleeves, Installation of two hand switch control, safety guards, photo electric sensors. |
| 7. Removing the debris and putting it inside the bin | Contact with sharp edges cause cuts and bruises, Fractures and bruises caused by being struck by materials or by being caught in pinch points, Strains and sprains from lifting loads improperly. | Use safe lifting techniques. Use safety guards and placing a bin near the machine, so that the debris falls automatically inside the bin. |
| Prepared by: Manoj Khanna R | | Date: 7-12-2021 |
| Approved by: Aravindhana | | Date: 10-12-2021 |
| Next review date < 5yrs: | | |

the

Fig 2 – Job Safety Analysis Form

acknowledgment of dangers. For rarely performed or new positions, perception may not be down to earth.

One methodology is to have a gathering of experienced specialists and directors complete the investigation through conversation. A benefit of this technique is that more individuals are associated with a more extensive base of involvement and advancing a more prepared acknowledgment of the subsequent work methodology. Individuals from the wellbeing and security panel should likewise take an interest in this cycle.

Introductory advantages from fostering a JSA will turn out to be clear in the readiness stage. The investigation cycle might distinguish beforehand undetected perils and increment the work information on those taking part. Security and wellbeing mindfulness is raised, correspondence among laborers and directors is improved, and acknowledgment of safe work systems is advanced.

A JSA, or even better, a composed work system in view of it, can frame the reason for standard contact among administrators and laborers. It can fill in as a showing help

2.2. Four basic steps in JSA

- Selecting the job to be analyzed
- Breaking the job down into a sequence of steps
- Identifying potential hazards
- Determining preventive measures to overcome these Hazards

2.3. What is important when selecting a job?

In a perfect world, all positions ought to be exposed to a JSA. Now and again there are down to earth imperatives presented by how much time and exertion needed to do a JSA. Another thought is that each JSA will require correction at whatever point hardware, unrefined components, processes, or the climate change. Thus, it is generally important to recognize which occupations are to be examined. Regardless of whether investigation of all positions is arranged, this progression guarantees that the most basic positions are analyzed first.

Variables to be considered in laying out a boundary for investigation of occupations include: Accident recurrence and seriousness: occupations where mishaps happen as often as possible or where they happen rarely yet bring about genuine

wounds. Potential for extreme wounds or ailments: the outcomes of a mishap, perilous condition, or openness to destructive items are possibly serious. Recently settled positions: because of absence of involvement with these positions, risks may not be apparent or expected. Adjusted positions: new risks might be related with changes in work methodology. Rarely performed positions: laborers might be at more serious danger when undertaking non-routine positions, and a JSA gives a method for assessing perils.

3. BEFORE JSA

Many accidents and injuries occur in the power press operation like contact with sharp edges, cuts, bruises and it may lead to amputation. Workers working in the power press with training.

4. METHODOLOGY

JSA methodology can be divided into steps

- Defining the job or task
- Organizing the JSA team
- Dividing the jobs into sub steps
- Identifying potential hazards
- Assessing the risks
- Designing risk control measures
- Evaluating the residual risks
- Approving the JSA
- Organizing pre job meeting
- Monitoring and reviewing
- Safe Operating Procedure (SOP)

4.1. Defining the job or task

A hydraulic press is a machine press using a hydraulic cylinder to generate a compressive force. It uses the hydraulic equivalent of a mechanical lever, and was also known as a Bramah press after the inventor, Joseph Bramah, of England. He invented and was issued a patent on this press in 1795.

4.2. Organizing the JSA team

The JSA ought to be embraced by people who are playing out the undertaking. HSE people can help with working with the JSA bunch rather than being responsible for bunch alone.

4.3 Dividing the job into sub steps

- The steps included in Hydraulic power press operation are
- Turn on the press brake
- Test 2 hand control
- Bolster adjustment
- Unloading the steel pack
- Taking the piece and placing it in the die
- Removed the formed part and placing it in the conveyor

- Removing the debris and putting it inside the bin

4.4. Identifying the potential hazards.

Potential hazards from each steps are identified from the perspective of safety occupational health and environmental impacts. Some of the hazards are contact with sharp edges, collapse of material, fall from height, point of operation etc.

4.5. Assessing the risks

This interaction guarantees that the danger are productively dispensed and an appraisal of the seriousness of the results of understanding the risks and the probability of its event is performed. The danger lattice was created by evaluating and deciding the need which ought to be given to each recognized danger. Both the seriousness rates and the probability rates range from 1 to 5, and the danger rating is equivalent to their item which goes from 1 to 25. Further activity should be thought of assuming the danger rating is above medium danger whose rating is 10. On the off chance that the danger positions north of 20, it could be important to stop work action quickly until the danger is dispensed with or decreased to a satisfactory level.

4.6. Designing risk control measure

Utilizing the "order of control" to control and decrease the danger. The order of hazard control is as following: (1) disposal; (2) replacement; (3) designing controls, as mechanical security; (4) authoritative controls; (5) individual defensive gear (PPE). The higher the need is, the better the control result will be. PPE is the last protection in hazard control measures.

4.7. Evaluating the residual risks

Wellbeing, Safety and ecological dangers are studied, methodically regulated and restricted ALARP. To choose if chance has been diminished to ALARP, the risk lattice should be used as a reason, and the assessors ought to use their experience, ability likewise data on best practice to close whether any further effort can be made to calm peril similar to cost or effort (Wellbeing and Safety at Work, and so on, 1974, U.K.).

4.8. Approving the JSA

The on location individual in control and HSE specialists will evaluate the danger control measure and endorse the JSA by marking on the JSA and license to work (PTW). Let somebody who was not associated with making JSA to audit the JSA.

4.9. Organizing pre job meeting

Each person who will be related with the endeavor ought to go to the pre job meeting. The social occasion should be a discussion rather than the talking just of the supervisors and HSE people. Later the conversation, the chief and the experts

should sign on the back of the JSA sheet showing that they have participated in the get-together and totally understood the task and the dangers during performing it, and the crucial mitigations to do the occupation safely. At long last, associate a copy of the supported JSA design to the PTW.

4.10. Monitoring and reviewing

Observing and survey ought to be an arranged piece of the danger the executives interaction and imply normal checking or observation. The outcomes ought to be recorded and detailed remotely and inside, as fitting. The outcomes ought to likewise be a contribution to the survey and constant improvement of the company's danger the executives structure. Responsibilities regarding observing and survey ought to be obviously characterized. The company's checking and survey cycles ought to incorporate all parts of the danger the board interaction for the motivations behind guaranteeing that controls are compelling and productive in both plan and activity.

4.11.1 Safe Operating Procedure

PRE-Operation/Task: Task (for example Drawings, guidelines, particulars and so forth) is obviously perceived. Guarantee press is ready to go without apparent harm to structure or water driven liquid holes. Guarantee work piece is set soundly on the plate. Cinch work piece (if proper).

Activity/Task: Keep hands and body clear of press component when bringing down. Lower slam until it contacts the work piece. Change strain of slam to wanted setting. Recognize ON/OFF switch and crisis stop button (if material).

POST-Operation/Task: Ensure the region is clear of others. Discharge strain on water driven press. Gradually raise slam and eliminate work piece from plate. Return work pieces and different things to capacity region as fitting.

5. After JSA:

After implementing JSA in the power press operation injuries and accidents are reduced. All the employees are trained properly and they machines are guarded safety according to the working conditions.

6. Result:

The power press activities are perilous because of assorted and complex nature of work assignments and workplace. JSA is a successful strategy in hazard the executives and by that risks are diminished and control measures are carried out. Preparing is given to the specialists on Safe Operating Procedure. So the danger level is diminished.

7. Conclusion

The fundamental objective is to distinguish and dissect the activity in power press. In spite of the fact that JSA is a danger appraisal strategy planned to add to chance informed choices and guarantee safe tasks, it additionally has a few different advantages as far as both protected and

effective activities eventually introducing suitable controlling techniques for hazards anticipation and disposal it is attempted to confine and diminish such ominous occasions.

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