Industrial Safety Auditing in BHEL

Ashutosh Shandiliya  
Department of Industrial Safety Engineering  
IES-IPSA, INDORE

Vineet Banodha  
Department of Industrial Safety Engineering  
IES-IPSA, INDORE

Abstract

Aim in this project is to perform safety auditing in different departments of BHEL plant to identify the hazards and to minimize the hazard in order to make the working environment safe. BHEL Jhansi is place where manufacturing the power transformer & locomotive and its Maintenance carried out. During the manufacturing of transformer & locomotive there is a high Probability of accident on every working day.

Keywords: Safety Auditing, Job Safety Analysis

I. INTRODUCTION

BHEL is the largest engineering and manufacturing enterprise in INDIA. BHEL deals in the manufacturing of power transformer and locomotives. This plant of BHEL is equipped with the most modern manufacturing processing and testing facilities for the manufacture of power, special transformer and instrument transformers, Diesel shunting locomotives and AC / DC locomotives. It has two manufacturing unit, transformer unit and locomotive unit.

II. METHODOLOGY

A. Audit:

Audit is a systematic and, wherever possible, independent examination to determine whether activities and related results conform to planned arrangements and whether these arrangements are implemented effectively and are suitable to achieve the organization’s policy and objectives.

1) Types of Audit:
   1) Health and safety audits
   2) Health and safety management audit
   3) "Walk around audit"
   4) Project Health, Safety & Environmental (HSE) auditing
   5) Process safety audit
   6) Product safety audit
   7) Safety Management

B. Job Safety Analysis:

Job safety analysis is accident prevention technique that is used to identify the potential hazard associated to the job and gives control measure to minimize the hazard.

2) Analysis Includes Five Steps:
   1) Select a job
   2) Break the jobs down into steps
   3) Identify potential hazards.
   4) Apply the controls to the hazard.
   5) Evaluate the controls.

   Job Safety Analysis worksheet
   For civil work in the plant

   Company name: ..............  
   Date: ..............  
   Site name: ..............  
   Permit to work: ..............  
   Activity ..............  
   Approved by: ..............

<table>
<thead>
<tr>
<th>S.no</th>
<th>activity</th>
<th>Hazards</th>
<th>Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Excavation</td>
<td>Fall from height, exposure to live wire, falling objects impact,</td>
<td>Use of safety harness, use of ears</td>
</tr>
</tbody>
</table>
exposure to noise.
muffs.

<table>
<thead>
<tr>
<th>S.no</th>
<th>Activity</th>
<th>Hazards</th>
<th>Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Storage in open yard / closed shed</td>
<td>Fire due to broken inflammable packing scraps, fire due to dry weeds and bushes.</td>
<td>Packing scraps are transferred to the identified scrap yard. No smoking area.</td>
</tr>
<tr>
<td>2</td>
<td>Material handling By crane</td>
<td>Falling object impact, moving object impact</td>
<td>Fitness testing of cranes and slings done half yearly, escorted with rigger. Hand gloves are in use.</td>
</tr>
<tr>
<td>3</td>
<td>Storage / handling of gas cylinders</td>
<td>Fire/explosion</td>
<td>Valve checking to be carried out, hand trolley to be used, fire drill required.</td>
</tr>
<tr>
<td>4</td>
<td>Storage of lubricant oil</td>
<td>Fire in leaked oil</td>
<td>Fire extinguisher is provided, no smoking area.</td>
</tr>
<tr>
<td>5</td>
<td>Handling of mineral wool</td>
<td>Exposure to dust of mineral wool</td>
<td>Respiratory mask and hand gloves to be provided.</td>
</tr>
<tr>
<td>6</td>
<td>Material handling (manual)</td>
<td>Cut due to handling of sharp objects</td>
<td>Hand gloves in use.</td>
</tr>
</tbody>
</table>

### III. Conclusion

The use of job safety analysis methodologies contributes to the prevention of accidents and helps to make the system a safe place to work in the plant. Thus in this job safety analysis has been performed in every section of work place in the plant. Potential hazard associated to maintenance work under different section have bee identified and power control measure have been recommended by preparing job safety analysis worksheet.

### REFERENCES


[2] Previous studies such as by Mitchison and Papadakis (1999) have demonstrated that effective safety management improves level of safety in organization and thus can be seen to decrease damages and harm from incidents (cited from Bottani, Monica & Vignali, 2009).


