E-tools For OHS Risk Management

JSA/JHA cloud-based applications and tools

Introduction

- E-tools are a significant emerging trend in OHS Management
  - Wearables - heat stress, heart rate, shock sensors
  - Artificial Intelligence - Videocam input
  - Cloud-based JHA Relational Database Applications - Our focus of this presentation
- Kevin Lehner CHMM, EMS-LA  Background & Experience
- E-tools & OHS Management Systems
  - Recent Harvard & Duke Research Supporting OHS Management Systems Approach
  - Best OHSMS use PDCA, are well organized to produce evidence quickly during audits.
  - Cloud-based apps make great things happen to OHSMS
JHA Definition OSHA (2002)

A job hazard analysis is a technique that focuses on job tasks as a way to identify hazards before they occur. It focuses on the relationship between the worker, the task, the tools, and the work environment. Ideally, after you identify uncontrolled hazards, you will take steps to eliminate or reduce them to an acceptable risk level.
Background for JHA & Risk Assessment

- Job Hazard Analysis = Job Safety Analysis
- Inventory of OHS hazards for specific jobs (plan part of PDCA)
- Traditional JHA includes
  - The name of the job
  - A description of the hazard
  - A description of the control in place to “address” the risk
- JHA processes are beginning to use modern risk assessment techniques.
- The purpose of this presentation is NOT to teach you how to do ISO or a JHA
- The purpose also NOT to teach you how to do risk assessment.

Risk Management Resources

- ASSP and the National Safety Council - Webinars and Training
Learning objectives

After this presentation you will be able to use a cloud-based application to:

- Record the results of your JHA.
- Assess OHS hazards and estimate risk.
- Apply the hierarchy of controls to estimated risk values
- Evaluate remaining estimated risk and determine if it is acceptable.
- Create risk reduction tasks to investigate and implement additional controls.
- Plan and execute OHS risk control internal audits.
- Follow-up on OHS audit findings.
- Communicate the progress of OHS risk management to leadership

JHA Applications Vs Spreadsheets

- Example Excel format for JHA with semi quantitative risk assessment.
JHA/ JSA Database Advantage

Example of Database format

Entering Data

Uploaded - From excel spreadsheet

Entered directly into app by a user
<table>
<thead>
<tr>
<th>Risk ID</th>
<th>Location</th>
<th>Process</th>
<th>Equipment ID</th>
<th>Hazard</th>
<th>Aspect</th>
<th>Defect</th>
<th>Risk Score Uncontrolled</th>
<th>Risk Level Uncontrolled</th>
<th>Risk Score Controlled</th>
<th>Risk Level Controlled</th>
</tr>
</thead>
<tbody>
<tr>
<td>51</td>
<td>An Example Location 1</td>
<td>Extrusion - Press Jigging</td>
<td>Resin Released in Tank - Car/Bulk Truck</td>
<td>Stop Signs</td>
<td>High</td>
<td>6.00</td>
<td>Medium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>An Example Location 1</td>
<td>Extrusion - P14</td>
<td>OHS</td>
<td>Stretching</td>
<td>Stop Sign</td>
<td>temperature extremes</td>
<td>Low</td>
<td>2.00</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>An Example Location 1</td>
<td>Extrusion - p17</td>
<td>OHS</td>
<td>Resin Released in Tank - Car/Bulk Truck</td>
<td>Stopping</td>
<td>Temperature extremes</td>
<td>Low</td>
<td>2.00</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>An Example Location 1</td>
<td>Extrusion - P13</td>
<td>OHS</td>
<td>Resin Released in Tank - Car/Bulk Truck</td>
<td>Stopping</td>
<td>Stopping</td>
<td>High</td>
<td>6.00</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>An Example Location 1</td>
<td>Extrusion - OHS</td>
<td>Resin Released in Tank - Car/Bulk Truck</td>
<td>Stopping</td>
<td>temperature extremes</td>
<td>Low</td>
<td>2.00</td>
<td>Low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>An Example Location 1</td>
<td>Extrusion - OHS</td>
<td>Resin Released in Tank - Car/Bulk Truck</td>
<td>Stopping</td>
<td>temperature extremes</td>
<td>Low</td>
<td>2.00</td>
<td>Low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>An Example Location 1</td>
<td>Extrusion - OHS</td>
<td>Resin Released in Tank - Car/Bulk Truck</td>
<td>Stopping</td>
<td>temperature extremes</td>
<td>Low</td>
<td>2.00</td>
<td>Low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>An Example Location 1</td>
<td>Extrusion - OHS</td>
<td>Resin Released in Tank - Car/Bulk Truck</td>
<td>Stopping</td>
<td>temperature extremes</td>
<td>Low</td>
<td>2.00</td>
<td>Low</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CorrectTrack**

- **Login**
  - **User:** AnnAdmin@anenvsample.org
  - **Password:** 

  `Forgot your username or password?`
Apply HOC Protection Factors

<table>
<thead>
<tr>
<th>Hierarchy of Control</th>
<th>HOC Protection Factor (Multiply Risk By)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eliminate the hazard</td>
<td>0.0</td>
</tr>
<tr>
<td>(30% risk score reduction)</td>
<td></td>
</tr>
<tr>
<td>Substitute with less hazardous</td>
<td>0.2</td>
</tr>
<tr>
<td>processes, operations, materials or</td>
<td>(80% risk score reduction)</td>
</tr>
<tr>
<td>equipment</td>
<td></td>
</tr>
<tr>
<td>Use of Engineering Controls and</td>
<td>0.4</td>
</tr>
<tr>
<td>reorganization of work</td>
<td>(60% risk score reduction)</td>
</tr>
<tr>
<td>Use Administrative Controls in-</td>
<td>0.6</td>
</tr>
<tr>
<td>cluding training</td>
<td>(40% risk score reduction)</td>
</tr>
<tr>
<td>Use adequate personal protective</td>
<td>0.8</td>
</tr>
<tr>
<td>equipment (PPE)</td>
<td>(20% risk score reduction)</td>
</tr>
<tr>
<td>No Control</td>
<td>1.0</td>
</tr>
<tr>
<td>(0% risk score reduction)</td>
<td></td>
</tr>
</tbody>
</table>
Part 2   Doing - E-tools for JHA Follow-up

Risk Management

<table>
<thead>
<tr>
<th>Risk ID</th>
<th>Location</th>
<th>Dept.</th>
<th>Risk Source</th>
<th>Process</th>
<th>Task</th>
<th>Equipment ID</th>
<th>Hazard</th>
<th>Aspect</th>
<th>Effect</th>
<th>Risk Score Uncorrected</th>
<th>Risk Score Controlled</th>
<th>Risk Level Uncorrected</th>
<th>Risk Level Corrected</th>
<th>Risk Level Controlled</th>
</tr>
</thead>
<tbody>
<tr>
<td>52</td>
<td>Location 1</td>
<td>P4</td>
<td>DH5</td>
<td>Wear -3</td>
<td>eyew -3</td>
<td>N/A</td>
<td>Visual</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>60</td>
<td>Location 1</td>
<td>P7</td>
<td>DH5</td>
<td>Wear -3</td>
<td>eyew -3</td>
<td>N/A</td>
<td>Visual</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>64</td>
<td>Location 1</td>
<td>P13</td>
<td>DH5</td>
<td>Wear -3</td>
<td>eyew -3</td>
<td>N/A</td>
<td>Visual</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>65</td>
<td>Location 1</td>
<td>DH5</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Visual</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>66</td>
<td>Location 1</td>
<td>DH5</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Visual</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>67</td>
<td>Location 1</td>
<td>DH5</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Visual</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>68</td>
<td>Location 1</td>
<td>DH5</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Visual</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>69</td>
<td>Location 1</td>
<td>DH5</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Visual</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Prioritize Risk Reduction Effort

Where do we start?

What do we do?
Kevin Lehner – ECSI 3/27/2022
Task 2116 was updated - Risk Reduction Task - Risk ID 835 (DO NOT EDIT TH52116)

Subject: Risk Reduction Task - Risk ID 835

Last updated by: etsiadmin@comtechjack.com

Reported On: 2022-03-17 09:30 PM UTC
Location/Project: 'comtechjack.com'
Category: Risk Reduction
Priority: High
Status: In Review
Risk Source: DB
Due: 2023-03-09

Date/Time
03/17/2022 10:44 PM
Risk Source
DB
Priority
High
Status
In Review

Proposed Additional Control

Verification Evidence
Risk Source Details

Risk Source Description

Verification Evidence
The risk reduction team investigated several options and is proposing to install new E-stop devices as an engineering control to reduce risk. (See attached picture) Deflection: The cost to implement this change is approximately $5000.00 ($5500.00 - $500.00).
Create Risk Reduction Task Flow

**Create**
- Create the task

**Assign**
- Assign to others if appropriate

**Track**
- Track progress

**Review and approve**
- Review and approve the proposed control to reduce the risk

**Update**
- Update risk score based on HOC and reevaluate

---

Part 3 Checking E-tools for Checking Risk Control Effectiveness
### Corrective Action Tracking

#### Part 4

**Risk Management**

<table>
<thead>
<tr>
<th>Risk ID</th>
<th>Location</th>
<th>Dept.</th>
<th>Risk Source</th>
<th>Process</th>
<th>Task</th>
<th>Equipment ID</th>
<th>Hazard</th>
<th>Aspect</th>
<th>Defect</th>
<th>Risk Score Uncontrolled</th>
<th>Risk Level Uncontrolled</th>
<th>Risk Score Controlled</th>
<th>Risk Level Controlled</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>An Example Location 1</td>
<td>Exh restriction</td>
<td>Cybersecurity</td>
<td>Bulk Delivery</td>
<td>Bag</td>
<td>Bulk Car/Truck</td>
<td>Sign</td>
<td>Nearness</td>
<td></td>
<td>High</td>
<td>5.75</td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>An Example Location 1</td>
<td>Exh restriction</td>
<td>OHS</td>
<td>Bulk Car/Truck</td>
<td>Bag</td>
<td>Bulk Car/Truck</td>
<td>Sign</td>
<td>Nearness</td>
<td></td>
<td>Low</td>
<td>2.00</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>An Example Location 1</td>
<td>Exh restriction</td>
<td>OHS</td>
<td>Bulk Car/Truck</td>
<td>Bag</td>
<td>Bulk Car/Truck</td>
<td>Sign</td>
<td>Nearness</td>
<td></td>
<td>Low</td>
<td>2.00</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>An Example Location 1</td>
<td>Exh restriction</td>
<td>OHS</td>
<td>Bulk Car/Truck</td>
<td>Bag</td>
<td>Bulk Car/Train</td>
<td>Sign</td>
<td>Nearness</td>
<td></td>
<td>Low</td>
<td>2.00</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>An Example Location 1</td>
<td>Exh restriction</td>
<td>OHS</td>
<td>Bulk Car/Train</td>
<td>Bag</td>
<td>Bulk Car/Train</td>
<td>Sign</td>
<td>Nearness</td>
<td></td>
<td>Low</td>
<td>2.00</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>An Example Location 1</td>
<td>Exh restriction</td>
<td>OHS</td>
<td>Bulk Car/Train</td>
<td>Bag</td>
<td>Bulk Car/Train</td>
<td>Sign</td>
<td>Nearness</td>
<td></td>
<td>Low</td>
<td>2.00</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>An Example Location 1</td>
<td>Exh restriction</td>
<td>OHS</td>
<td>Bulk Car/Train</td>
<td>Bag</td>
<td>Bulk Car/Train</td>
<td>Sign</td>
<td>Nearness</td>
<td></td>
<td>Low</td>
<td>2.00</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>An Example Location 1</td>
<td>Exh restriction</td>
<td>OHS</td>
<td>Bulk Car/Train</td>
<td>Bag</td>
<td>Bulk Car/Train</td>
<td>Sign</td>
<td>Nearness</td>
<td></td>
<td>Low</td>
<td>2.00</td>
<td>Low</td>
<td></td>
</tr>
</tbody>
</table>
Task 2124 was updated - Risk ID B33 - Do chrome roll e-step working and is the operator aware of its use? (DO NOT EDIT THRU 2124)

### Task 2124

**Short Desc:** Risk ID B33 - Do chrome roll e-step working and is the operator aware of its use?

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last Updated</td>
<td>3/27/2022</td>
</tr>
<tr>
<td>Updated By</td>
<td>Kevin Lehner – ECSI</td>
</tr>
<tr>
<td>Description</td>
<td>The task is to investigate the use of the chrome roll e-step mechanism.</td>
</tr>
</tbody>
</table>

**Status:** Stage 3 Investigate

**Reported:**
- 3/27/2022 10:26 AM
- Text: New Audit Finding

**Finding:**
- Corrected the chrome roll e-step mechanism's use to ensure awareness among operators.

**Corrective Action:**
- Implement a training program for operators on the correct use of the chrome roll e-step mechanism.

**Auditor:**
- Kevin Lehner – ECSI

**Note:**
- The task is to investigate the use of the chrome roll e-step mechanism.
Part 5
Communicating to Leadership

Communicate to Leadership
Other Benefits of Cloud-Based Apps

- Improved communication
- Workers & supervisors can quickly review JHA information
- Train employees
- Maintain records of changes
- A platform for elements of a JHA and an OHS management system

Summary and Questions
In Summary

- How to use e-tools to create OHS JHA and risk assessment
- Prioritize additional risk control
- Perform internal audits for risk control
- Follow-up on audit nonconformance
- Communicate results to leadership

www.envcompsys.com

Conclusion

- You should now be able to:
  - Use cloud-based database application to record the results of you JHA/JSA.
  - Assess OHS and other risk sources (hazards, env. aspects etc) and determine the “raw” uncontrolled risk for these risk source type.
  - Apply the hierarchy of control protection factors to and recalculate residual risk score.
  - Evaluate residual risk scores and determine if they are acceptable.
  - Create risk reduction tasks to investigate additional controls.
  - Use the cloud-based database application to plan and execute internal audits.
  - Use the application to follow-up on audit nonconformance.
  - Communicate the status of the risk management program to leadership
ECSI Exhibiting in Booth 334 at WSC

- Environmental Compliance Systems, Inc.
- Envcompsys.com
- CorrectTrack Cloud App
- CorrectTrack.com

www.envcompsys.com