Safety Engineering Management – SafetyPoint
Covaris Pty Ltd

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Summary: The Covaris Safety Engineering Management is an established system based on the Australian and International Standards and engineering best practice in safety engineering. It enables the systematic examination of the hazards associated with plant and machinery, leading to a documented safety improvement scheme and an ultimately safer workplace.

1.0 INTRODUCTION

This paper presents the information system developed by Covaris Pty Ltd to manage OH&S engineering data, with the intent to:

1. Optimise improvement opportunities
2. Assess risk in various situations
3. Register improvement works in hand
4. Report on legacy risk once improvement work has completed

The technology is a web-based product fully developed in Java, and accessing a database containing relevant information. The product is called SafetyPoint and represents a cohesive way in managing information for the engineering process in reducing work place risk.
The steps involved in this process include:

- Identification of machinery and locations for which risk needs to be managed
- Conduct a consistent and comprehensive assessment of the risk present, including an appreciation of multiple energy sources
- Identify and score all hazards present according to an approved risk matrix
- List and manage safety jobs which are tasks needed to mitigate the risk, eg isolation, guarding, re-design, etc

It is important to appreciate that effective safety engineering traces the mitigation work and subsequently scores the risk reduction associated with

2.0 MACHINE IDENTIFICATION

Safety is managed on the basis of individual machines or location sites. The safety database can be search according to a number of criteria as indicated in the search window below.
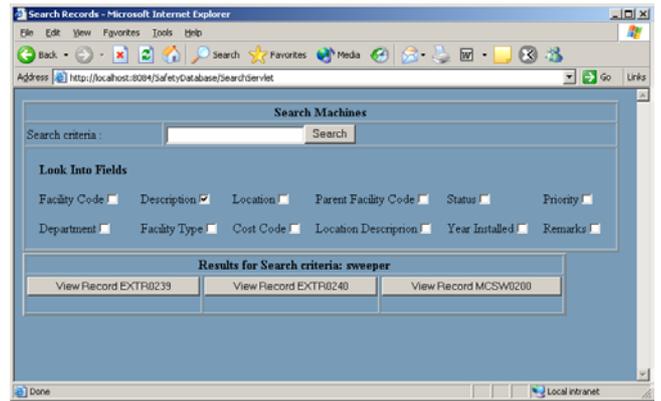
Once a number of machine possibilities are determined, then options are presented to the user. In the example below a search was made for all machines which included the word sweep in their description.

Clicking any one of the command buttons will raise the main record window for that machine or location. An example is shown below for a sweeping machine. Saving and changing data is subject to privileges applied to the user.
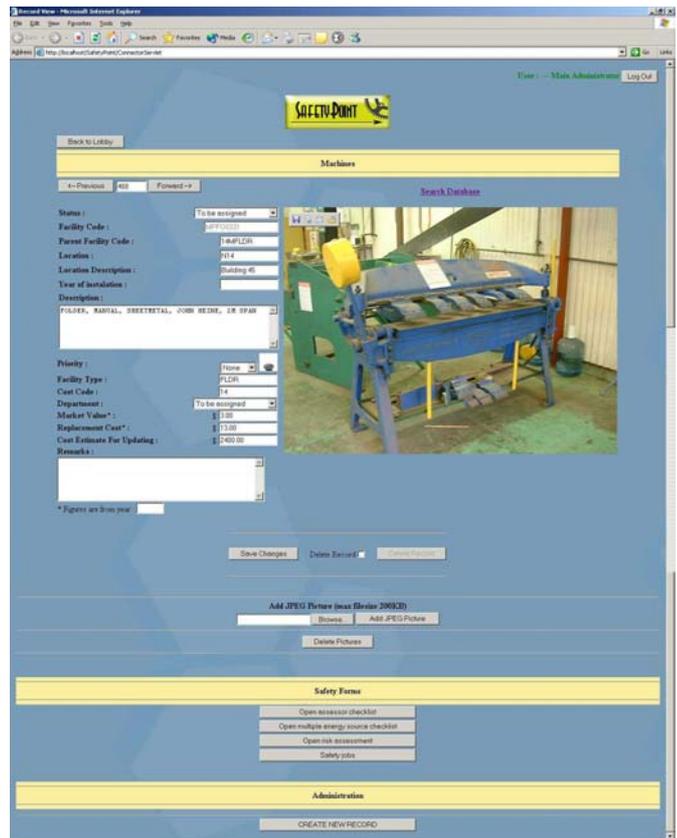

Functionality associated with the item of equipment is then displayed as a set of command buttons below. These include:

- Assessor Checklist
- Multiple Energy Source
- Hazard Identification
- Safety Jobs

- Users with write privileges can also see the "CREATE NEW RECORD" option which will open a blank Main Record Window form allowing the user to enter their data.

3.0 ASSESSOR CHECKLIST

The Assessor Checklist captures information associated with the technical risk of an item of equipment or a location. Only users with write privileges can modify and save the data.
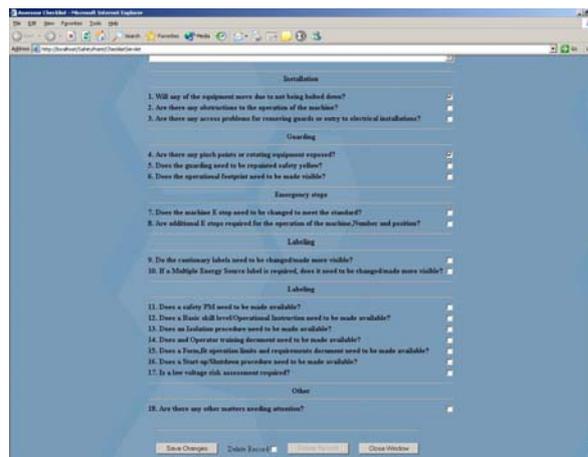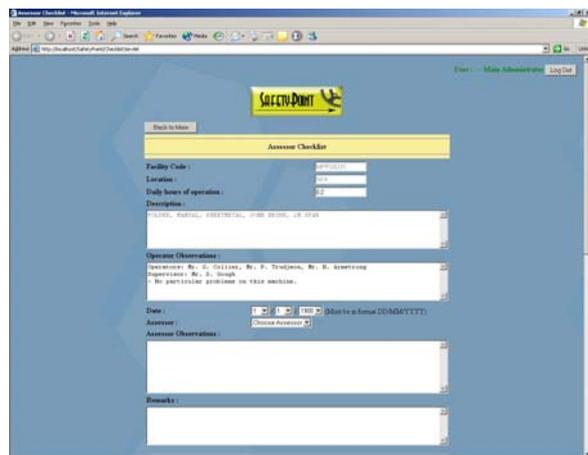
In the above example, a sweeper has been reported to create noise and assessing the machine resulted in measuring 96dB of noise level. In addition to the general level of assessment there is a tick list of standard questions that have to be considered.

Certain measures have been suggested for this machine to retain its safety standard. Some labels need to be made more visible, start up and shutdown procedure needs to be made available. Operating instructions and operator training document are also assessed as being needed.

Part of the assessment of a machine is the checking of multiple energy sources. This is critical in considering the isolation of the machine for either maintenance or in the case of an emergency. Multiple Energy Source Checklist identifies the energy sources powering the particular machine.

4.0 HAZARD IDENTIFICATION

This window is used for identifying current and potential hazards points associated with this machine. The hazards are classified according to repeatable criteria that allow comparisons between situations and different machines/locations.

4.1 All Hazards

This window identifies all the risk factors associated with this machine in more detail. The list is displayed in descending order by risk level. This window only shows a brief portion of the data for the actual risk factors.

Clicking on "Show/Edit All Details" will display the Risk Level Calculation window for that particular risk factor. Clicking on "View/Edit Residual Risk" will display all the risk factors and their current residual risk levels and what measures have been taken to reduce the risk levels.
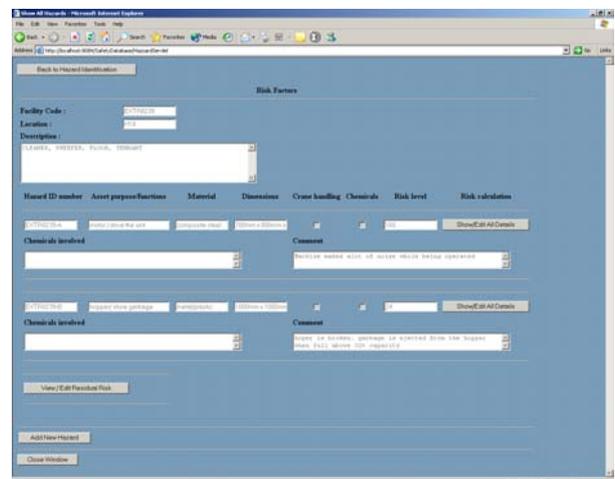
4.2 Risk Level Calculation

The Risk Level Calculation window shows all details about a particular risk factor.

The user selects the Exposure, Likelihood and Potential Severity out of the tables and the system computes the risk level for this hazard. This example pressure/vacuum risk is relatively low in comparison to the noise level risk also associated with this sweeper

This is the noise hazard associated with the example sweeper. It is much higher than the earlier hazard and that is why in the Show All Hazards Window is listed first.

4.3 Residual Risk

Residual risk is where the assessors enter their calculations after a particular risk has been dealt with. Residual Risk Window is similar to Risk Level Calculation Window and it is used to calculate the new risk level. This would usually end up being 0 if the hazard has been completely removed but in rare cases some residual risk may still be present.

5.0 SAFETY JOBS

This is the default screen for jobs when no safety job has been associated with this machine. After creating a job we see the capability to add new tasks. In this example, we are going to add a task which will display under the current safety tasks heading.

6.0 CONCLUSION

SAFETY POINT is a self-contained web enabled application, which is designed to capture and manage all necessary documentations from the beginning to the end of the process. The main steps through which this system provides a complete and comprehensive safety solution are:

- Operational requirements – Operational requirements of an asset are identified.
- Hazard identification – Hazards, hazardous situations and hazardous events for the asset in its operational environment are registered.
- Risk evaluation – For each hazard a risk profile is developed. This will quantify the process using sound engineering judgment.
- Safety measures – The identified safety measures (e.g. safeguarding, painting, interlocking, emergency stop switch,…) are implemented to eliminate identified hazards and/or reduce risk level.
- Residual risks – the residual risks after implementing the safety measures are documented and compared with the original risks to demonstrate safety improvement.