

Monitoring hazardous activities

Users	Operatives & foremen
Location	On site
Solutions	Few
User benefits	Medium
Org. benefits	High
Implementation	Medium



Process description

Whilst on a construction site there are many tasks that could be considered hazardous and the operatives undertaking these activities need to be monitored to make sure they are not overexposed to the dangers involved.

To illustrate this we have chosen the monitoring of the usage of vibrating tools and equipment.

Each time an operative switches on the tool the supervising operative starts timing and when the tool user switches the machine off the supervising operative stops timing and then records the length of time the operative used the tool for. These times are added up until the operative has reached the maximum usage time at which point they are told to stop using the tool.

These records are kept and available for the HSE to inspect when they request.

Background

Contractors should ensure that operations carried out on their sites do not present a hazard to people at work or a nuisance under Environmental Legislation. Hazardous activity is a wide ranging term which refers to possible dangers encountered on site from noise pollution to white finger and dangerous underground gasses.

Contractors should ensure that the operative has not exceeded safety limits in terms of exposure to damage. It is essential that this information is logged as exposure to damage accumulates over time. It is also essential that all information is kept post project in case of any claims made.

The main factor is the amount of time an operative spends on the hazardous activity and the ability to collect and collate the information on him/her efficiently so that it is available for assessment and clarification.

There are many operatives potentially involved in hazardous activities and these activities will have different levels of exposure allowed. However, the rules and regulations are set, so if an effective method

of recording this information is provided the process becomes much less complex.

Current issues

The following issues have been raised for this process:

- The HSE have increased their requirements for records regarding the usage of vibrating tools and equipment.
- There has been an increase in claims against contractors for historical exposure whilst undertaking hazardous activities. Often there is little information to support the fact that the contractor acted responsibly with regard to the operative's health and safety.
- Currently, contractors rely on operatives watching other operatives using hazardous equipment and using simple equipment to time them. This is huge waste of site manpower.
- It is not easy to find suitable people to undertake hazardous activities as their exposure records are not well kept.

Mobile solutions

This process can be addressed in two stages. The first stage will simply provide a form on a PDA for data capture electronically at the point-of-activity. The second stage will provide automatic identification for hazardous activities and operatives.

PDA form for capturing time undertaking hazardous activities

A form could be created for use on the PDA to enable the operative to capture the time spent undertaking hazardous activities.

The operative would be required to log-on to the PDA. A drop down for different types of activities could be provided with each activity associated with a maximum exposure e.g. scabblers (43 minutes). The operative would be required to pick the activity he/she is undertaking and then press the start button when they start the activity and the stop button when they stop. The accumulative time the operative has spent using the tool will be automatically calculated. This could be shown graphically as a 'fuel gauge' with an alert given to the operative and sent via SMS to the foreman when the usage exceeds HSE regulations.

Each time the form is completed it could be synchronised via WLAN or GPRS whilst out in the field. This would then enable a foreman to understand which operatives were still able to perform the work required.

The data can also be fed into a hazardous activities database which would collate the data from each operative. This would enable the HSE reports to be generated automatically.

Automatic identification of hazardous activities and operatives

Stage two of this implementation could require each operative to have a barcode or RFID to identify them and each hazardous activity or piece of equipment could be similarly tagged.

When the operative starts work he/she would then scan their barcode/RFID and scan the hazardous activity/piece of equipment. This would then automatically populate the PDA form with the relevant details.

A step on from this would require further hardware to be developed to fit on the hazardous equipment. This would automatically capture when the hazardous equipment is switched on/off.

Benefits of Mobilisation

The mobile solutions illustrated above eliminate the need for an operative to be employed purely to monitor and record the usage time. Since time calculations are carried out automatically it is possible for the operative undertaking the work to record this information.

The operatives are made more aware of their exposure to hazardous activities and hence may take more responsibility for their own health and safety.

Once the data is captured electronically it can instantly be used to populate a central database which enable a foreman to manage his/her operatives more effectively and ensure their health and safety.

The records would also serve to highlight the usage of the equipment on site and hence could be used to improve their utilisation.

The electronic record is less likely to get lost and hence will provide an ongoing record in the case of future claims of negligence on the part of the contractor.

Ease of implementation

The provision of a PDA form for the collection of the time spent undertaking hazardous activities is relatively simple and there are many packages available that can be used to create the form. However, there is a reliance on the operative to diligently complete the form whilst undertaking his/her work.

RFID/barcoding technologies are readily available and relatively inexpensive. It would be preferable for the tool/equipment manufacturers to add these to the equipment as it is often on hire, however, the contractor could add these once the equipment reaches site.

The hardware required to automatically detect when the equipment is switched on/off would have to be developed by the manufacturer and hence may be less likely to occur unless the HSE demands its implementation.