



PEPSICO, CARRIGALINE – SAFETY ACTION TEAMS

1. Case metadata

▪ **Country of origin:**

Ireland

▪ **Year of publication by agency:**

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▪ **Sector:**

NACE II - C11.07 - Manufacture of soft drinks; production of mineral waters and other bottled waters

▪ **Keywords:**

24401C Case studies; 24361C Good practice; 21361C Machinery; 21401C Maintenance; 19641D Risk assessment; 20641D Worker participation; 14001E Engineering controls.

2. Organisations involved

PepsiCo, Carrigaline

3. Description of the case

3.1. Introduction

PepsiCo Carrigaline is a subsidiary of Pepsi worldwide flavours (PWF) which is a subsidiary of PepsiCo, and was established from a Greenfield site in 2002/03. The facility occupies a 27 Acre site and consists of 150,000 square feet of Warehousing and Manufacturing as well as a 28,000 square feet Utility Block. There are five process rooms, five filling lines, eighty process vessels and over 2000 automatic valves, providing dedicated manufacturing systems for six different product variants.

There is a high level of automation on the site, which necessitates both periodic maintenance and occasional repair. This work is carried out by PepsiCo Engineers and/or specialist contractors. Maintenance work of this type has been shown to present a number of risks to workers' safety; machine operators may sustain injuries due to poor maintenance work and maintenance staff may sustain injuries during the course of their work.

A health and safety contractor had initially carried out generic risk assessments, which were not job specific and only addressed hazards such as manual handling, fire, explosion, and working at height, and did not address maintenance related tasks. Internal and external auditors had highlighted that these risk assessments were in need of updating and there was a corporate requirement for the site to be OSHAS 18001 accredited in 2010. In 2009 PepsiCo Carrigaline decided to review their risk assessment process to make them more task specific and to include safe maintenance as part of the total review.

3.2. Aims

PepsiCo Carrigaline aimed to set up multi-disciplined Safety Action Teams (SATs) to identify all the hazards associated with maintenance activities and to identify corrective actions and Key Safety Behaviours (KSBs) to reduce the risk of an accident.



3.3. *What was done, and how?*

To identify all the hazards associated with maintaining plant and equipment the company first had to identify all the specific maintenance tasks that were carried out in each area of the plant. They then drew up a list of activities and used this as a prompt when carrying out maintenance related risk assessments in each area.

In 2009 multi-disciplined Safety Action Teams were formed to complete risk assessments on all tasks across the site. These SAT's were set up to engage employees and to give them a sense of ownership in the risk assessment process. Front line employees and technical staff who had key operational experiences in the various areas of the plant were identified and recruited onto the teams. These employees were then trained in both hazard identification and in risk assessment by the onsite EHS team leader. SAT's were set up across the entire site and a total of 25 employees directly participated in the process by the time it was completed in Nov 2010. A risk assessment flow chart was produced which outlined the steps to be taken to complete the risk assessment process. An electronic EHS management tool was used to track corrective actions and issue status reports, etc.

The SATs carried out a total of 2012 risk assessments in the plant and, where possible, identified corrective actions to reduce the risk ratings. 151 of these risk assessments were related to maintenance tasks and a further 380 were categorised as safety critical. The company's next priority was to begin a program to implement the appropriate corrective actions and engineering changes to reduce the risk rating. The plant's target for 2010 was to make changes to reduce the risk factor of 80% of the 173 activities that were considered to be high risk. Unfortunately this target was not met but the risk factors for 50% of the high risk activities were reduced.

Examples of maintenance corrective actions that allow jobs to be carried more efficiently and safely are:

- The installation of a lifting beam and chain block system to reduce the manual handling risks associated with changing mechanical seals on large bottom mounted high shear mixers on process vessels.
- Installation of hand valves across filter housings so that there is local isolation available to enable safe change out of filters.
- Installation of access platforms on vessels to provide a safe means of working at height whilst carrying out maintenance activities on agitators, valves, CIP spray balls and man ways.
- Specific isolation procedures for equipment such as tanks/vessels and homogenisers so that there was a consistent approach to lock out, tag out and ensure a lower risk of human error.

One of the SAT's objectives was to identify 6 Key Safe Behaviours (KSB) to be followed while working in particular areas, including maintenance activities; these behaviours were then visually displayed within the area. This was considered to be an excellent way of communicating the main behaviours to be followed in the area to minimise risks to personnel. These KSB boards are used to induct new personnel to the area and also as a prompt to auditors carrying out behaviour based safety observations and health and safety audits. Examples of KSBs include:

- PPE requirements,
- fork truck driving,
- earthing arrangements for filling in ATEX zoned areas,
- entanglement hazards,
- slip, trip or fall hazards.



PepsiCo, Carrigaline have set a target of 1.5 “near miss/good catch” reports by individual full time employees. This target is 8 for maintenance personnel as they work across all areas and will be best positioned to notice more hazards during the execution of their daily duties. A “good catch” is defined as something with the potential to cause harm or injury and a “near miss” is defined as an event which did not result in damage or injury, but under slightly different circumstances may have.

3.4. *What was achieved?*

The net result from this work is that PepsiCo, Carrigaline are currently 29 months without a lost time accident, which is a significant improvement on their previous record of 11 months. They have also witnessed an increased awareness of health and safety in the plant, demonstrated by an 80% increase in the number of HSE near miss/good catch reports from employees in 2010.

In 2009 the plant received a merit award from NISO/NISG in their annual occupational safety awards. PepsiCo Carrigaline also received a centre of excellence (COE) from PepsiCo International in early 2010 in recognition of the work completed by the Safety Action Teams.

In May 2010 PepsiCo Carrigaline gained certification to OSHAS 18001:2007 and ISO 14001:2004 from the NSAI. The work the Safety Action Teams had completed on risk assessments contributed hugely to the company receiving these accreditations as the main focus of the audits was on risk assessments. The feedback from the NSAI auditors at the audit close out meeting was very positive as they had interviewed several of the SAT members and commented that a positive health and safety culture was imbedded throughout the organisation as the personnel involved in the SATs understood the process fully and recognised the benefits for both themselves and the company.

3.5. *Success factors*

The prevention of lost time accidents has provided major cost benefits as it has avoided potential downtime in the plant while incidents/accidents are investigated, and the need to spend time recruiting and training temporary staff to cover anyone that is off work through injury. The benefit to employees is that they know that they work in a safe place and that all hazards have been identified and the risks assessed by themselves. They know that PepsiCo take health, safety and the environmental issues seriously through their investment into corrective actions to reduce the identified risks.

3.6. *Further information*

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3.7. *Transferability*

By selecting key personnel and providing them with the appropriate training it should be possible to form multi-disciplined Safety Action Teams in most medium and large sized organisations. Many of the engineering controls described in this case study may also be transferred to other businesses.