TARMAC WEST REGION MAINTENANCE STRATEGY

1. Case metadata

- ***Country of origin:***

UK

- ***Year of publication by agency:***

2011

- ***Sector:***

NACE II – B08.1 - Quarrying of stone, sand and clay; C23.5 - Manufacture of cement, lime and plaster; C23.6 - Manufacture of articles of concrete, cement and plaster

- ***Keywords:***

24401C Case studies; 24361C Good practice; 21401C Maintenance; 19641D Risk assessment; 10841C Training assessment; 10961C Training materials; 10881C Training courses; 20641D Worker participation; 14001E Engineering controls

2. Organisations involved

Tarmac, West Region

3. Description of the case

3.1. Introduction

Tarmac is the UK's largest quarrying company and supplier of building materials to the construction industry. They are a market leader for aggregates, ready mixed concrete and asphalt. Other parts of the business include; Tarmac National Contracting and Tarmac Buxton Lime and Cement. In 2009 Tarmac employed 6,488 permanent members of staff and 94 contractors.

The health, safety and wellbeing of their employees, contractors, visitors and neighbours is Tarmac's top priority and a safety culture, which is based on continuous improvement and an aim for zero harm, is embedded throughout their organisation. This culture has driven consistent year-on-year health and safety performance improvements, which has helped them to achieve a significant reduction in lost time injuries over the last four years.

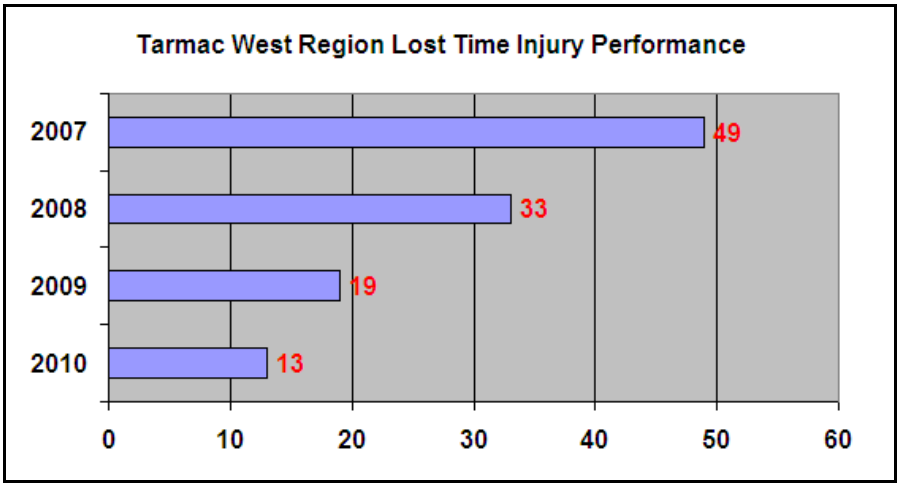

Figure 1: Number of Lost Time Injuries 2007 - 2010

Tarmac aim to continue reducing the number and severity of incidents to achieve their target of zero harm and have set a target of a 20% reduction in the total recordable case frequency rate each year.

To help achieve this reduction, Tarmac employ a strategy that is based on three key principles:

i. Zero mindset: they believe that all injuries and occupational illnesses are preventable.

ii. No repeats: all necessary steps are taken to learn from incidents to prevent recurrence.

iii. Standards: common, simple, non-negotiable safety standards and rules are consistently applied throughout Tarmac.

In 2009 maintenance work accounted for 36% of the total number of injuries to Tarmac (West Region) employees. In Q4 of 2009 Tarmac (West Region) identified the need to make a step change to drive down all injury incidents to maintenance staff; a maintenance strategy was born.

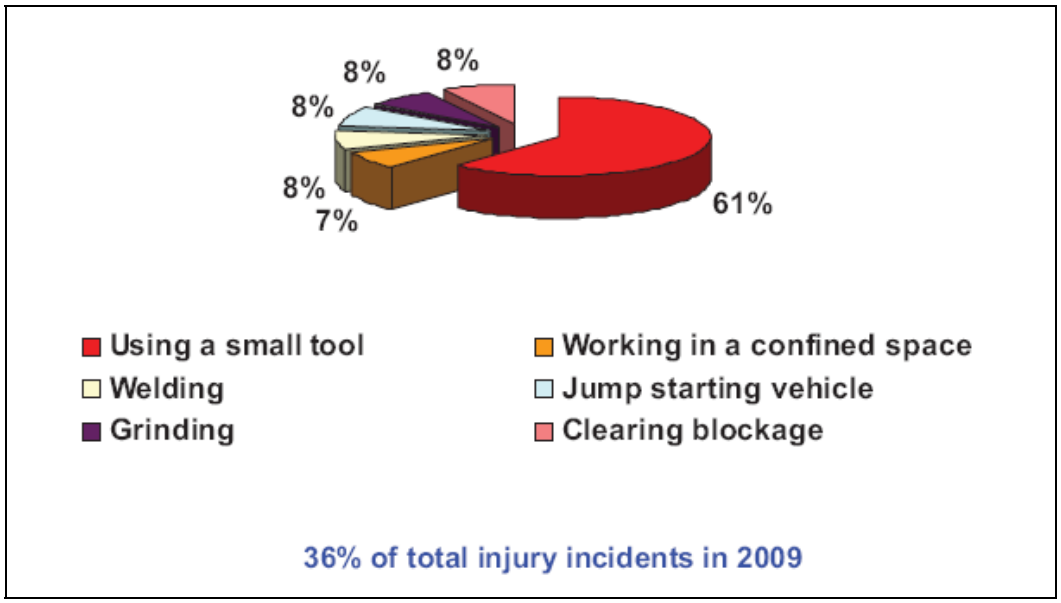

Figure 2: Maintenance injury incidents in 2009

3.2. Aims

By clearly setting operational performance objectives and identifying the skill gaps within their team, Tarmac (West Region) aimed to deliver training in competencies to improve maintenance safety.

The key objectives of the maintenance strategy were:

- look out for each other;
- avoid near-hits and prevent injury;
- maintain healthy workforce; and
- move from reactive to proactive maintenance.

3.3. What was done, and how?

To achieve the aims of the strategy, a competent workforce was required, and in order to move away from operating in the reactive domain (i.e. fix it when it breaks), ownership and responsibilities needed to be clearly defined.

To address this, role profiles were created for the existing maintenance staff and for newly instated Maintenance Section Leaders (MSLs), which defined the purpose of the role, day-to-day responsibilities and Key Performance Indicators (KPI's).

Objectives and Key Performance Indicators (KPIs) were set:

- Safety, Health & Environment (SHE) need to do:
  - Comply with the Tarmac Safety Management System.
  - Set a personal example of health and safety best practice.
  - Ensure method statements, risk assessments & Safe System of Work. (SSWs) are conducted and used as required for operations based activities.
  - Manage issue & correct use of PPE.
  - Actively look to identify & implement SHE improvement opportunities.
  - Compile relevant environmental log and forward relevant information to regulatory bodies as required.
- Safety KPIs:
  - Ensure all activities are conducted in a safe manner, and in accordance with the Tarmac Safety Management System. This includes issuing 'permits to work' when required, developing and using standardised operating procedures, method statements and risk assessments.
  - Number of near misses - near hit reporting is actively encouraged with the numbers reported by category reviewed each month. The more reports the better leading to fewer incidents.
  - Knowledge of, and following 'Golden Rules' - The Tarmac golden rules were developed some years ago to cover those activities that where identified as a cause of incidents for the company. There are 10 fixed site golden rules covering topics such as confined spaces, working at heights, energy and machinery isolation and the companies fundamentals for safety and health.
  - Number of safety defects identified, raised and implemented.
  - Managing statutory safety equipment inspections (eg. lifting & slinging, pressure & electrical, etc.).

Maintenance Section Leaders were appointed to monitor KPIs and to oversee maintenance activities, ensuring they are undertaken in accordance with Tarmac's safety & environmental management system, as well as site systems, policies and procedures. Their remit includes administering, recording and monitoring the scheduled maintenance process (Managed Maintenance System) documentation and ensuring that risk assessments, method statements, permits to work, etc. for the scheduled maintenance processes are readily available, complete and up to date so that all employees on site (permanent and relief) use best practice methods. Other MSL responsibilities include:

- review all safety check sheets on ancillary equipment;
- review all daily inspection & safety check sheets & action as required. (mobile, site & fixed plant);
- populate daily graphs for maintenance KPIs on asphalt and quarry KPI boards;
- run weekly maintenance planning meetings;
- review preventative maintenance task schedule and plan jobs with site appropriately;
- plan maintenance activities with Supervisors & Section leaders;
- plan and support improvement activity within maintenance areas, using techniques such as root cause analysis, and 5S, which is a methodology for achieving an efficient and effective workplace;
- attend weekly maintenance and KPI review with section leaders;
- toolbox talk / safety briefing (at least one each month);
- review, update & identify trends in monthly site KPIs;
- plan improvement activities (i.e. Root Cause Analysis, 5S etc.);
- attend four MSL forums per year with a view to improving safety focus/reducing incidents and sharing best practice; and
- review training needs assessments.

To support and measure the effectiveness of the maintenance staff, a competency assessment was created focusing on skills, knowledge and experience to highlight any gaps in the required attributes. This would then be combined with “My Tarmac Plan” an individual performance management review of specific objectives for each maintenance team member for regional, zone & site based goals.

A detailed training review was carried out to establish the most appropriate training to provide. Tarmac use a diverse range of plant, and equipment, from hand held drills to 60 tonne excavators and so need a highly skilled, multi-disciplined team of maintenance workers, who are competent to perform a wide variety of maintenance activities and in a variety of situations and environments. The review considered each of the required disciplines separately and included a ranking system to measure an individual’s level of competence. The separate disciplines were then classified into six categories, namely:

- essential skills;
- management skills;
- safety;
- process knowledge;
- maintenance skills; and
- qualifications.

For every maintenance employee a skill gap analysis was then carried to assess their competence in each of the above categories. The information that this process generated helped Tarmac (West Region) to understand the training needs of their workforce and enabled them to develop training and personal development plans for staff that specifically targeted the needs of the organisation as well as those of the individual.

In addition to setting training objectives, personal development plans include safety related objectives, such as:

- Carry out four Task Audits each month – Task Audits are a safety conversation undertaken by a manger or a supervisor out on site following the observation of a task. They are used to reinforce good practice and to improve poor practice as well as identifying the root cause for the poor practice.
- Sit on SHE committee meeting - SHE committees are held every 3 months at all of tarmac's operations and involve line management, employees, hauliers, contractors and are seen as a strategic group who can help shape the SHE improvement strategy for a site.
- Chair SHE committee meeting.
- Develop permit to work system to account for new shift patterns and 24 hr working.
- Review and develop RA & SSOW system employed by maintenance team.
- Build risk assessment capabilities within maintenance team.

During 2010 two MSL forums were implemented to engage and share best practice among maintenance staff, as well as to assess the current situation within the organisation and to identify areas for further improvement. Utilising the Goal, Reality, Options & Way forward (GROW) model and focusing on five key areas, (i. autonomous maintenance, ii. design for preventative maintenance, iii. equipment improvements, iv. planning and v. training) allowed the team to identify the current and future situation and helped them choose the most appropriate actions to take in order to achieve their goals.

Throughout 2010 MSLs were heavily engaged in all maintenance related safety briefings, culminating in a 'Safe to be a fitter' tool box, which was 90% compiled by MSLs. This tool box, which has been disseminated to all maintenance staff in the west region as well as being shared with other regions, is a training aid that includes accident case studies and guidance relating to the safe use of hand tools, electrical work, hot work, mechanical lifting, working at height and in confined spaces, hand arm vibration syndrome, risk assessment and safe systems of work. The 'Safe to be a fitter' tool box also sets out the tools that should be included in a fitter's autonomous toolkit so that maintenance staff are suitably equipped to do their job and not tempted to use inappropriate tools because they are more readily available.

Numerous tools and techniques have also been implemented, such as a 'Managed Maintenance System' (a planning tool to enable the site to monitor/measure its autonomous and planned maintenance adherence, defect recording/completion and breakdown history) and 'Understanding How To Maintain Our Kit' (a process flow to assess the rate, predictability and severity of failure and to decide which form of maintenance is most appropriate for specific situations).

Building on the initial assessments carried out for MSLs and maintenance staff in the west, a working group for maintenance skills and competency was setup and is due to be rolled out nationally, with the addition of a What Good Looks Like (WGLL) framework to provide a comprehensive overview of Skill verses Will.

3.4. What was achieved?

The results of the actions taken by Tarmac (West Region) in 2009 were evident in the 2010 accident statistics. The number of maintenance injury incidents had reduced by 28% and their were 67% fewer injury categories, as shown in Figure 3.

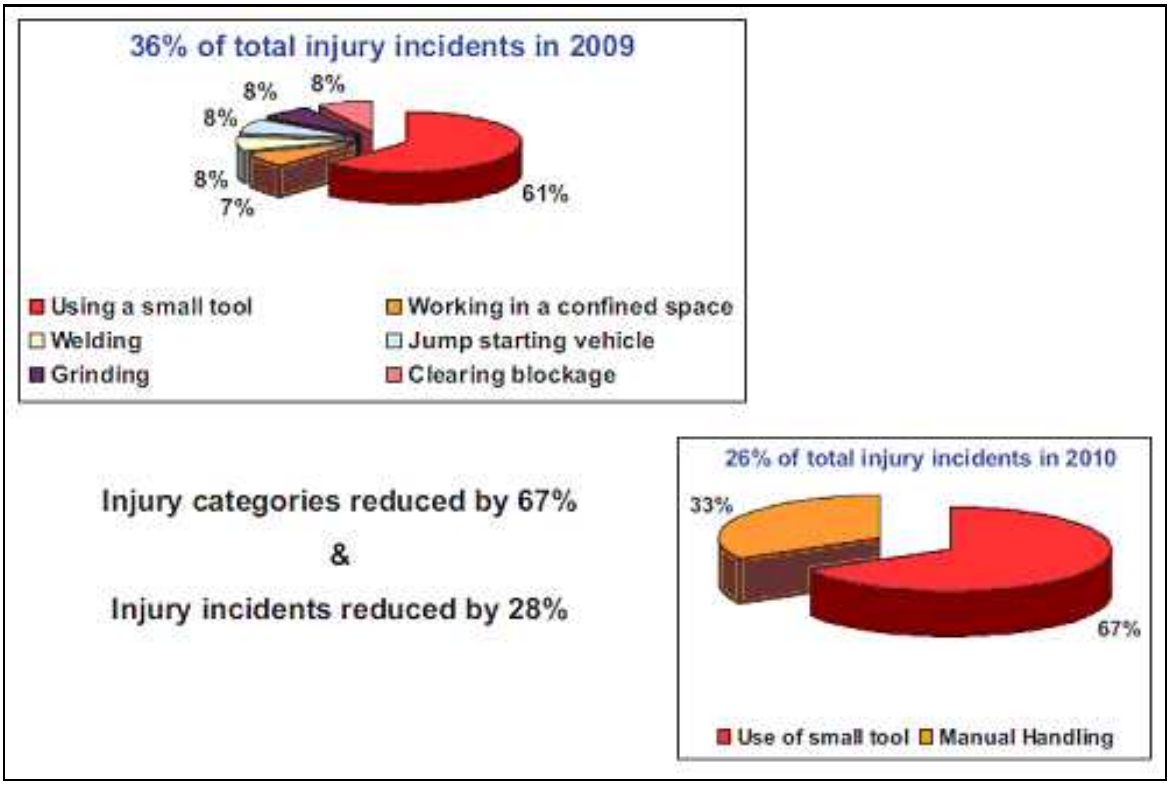

Figure 3: Maintenance injury incidents for 2009 (top, left) and 2010 (bottom, right)

The actions taken have also improved the reliability of the plant. In 2010 plant availability improved by 4.5% to an average of 96.4% and availability to date in 2011 is 96.5%.

3.5. Success factors

- The skill gap analysis helped Tarmac (West Region) to understand their training and staff development needs and so enabled them to develop training designed to target skill gaps.

- The involvement of the workforce in SHE committee meetings and Task Audits has helped Tarmac (West Region) to improve their processes and has further reinforced the health and safety culture throughout the organisation.

- The emphasis on safety and availability is now showing good results, both in terms of the safety of maintenance workers and in the productivity of the plant.

- The measures taken by Tarmac (West Region) that are described in this case study are in the process of being adopted by Tarmac nationally.

3.6. Further information

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3.7. Transferability

The actions described in this case study have already been adopted by a number of different Tarmac sites and is in the process of being rolled out nationally. Tarmac's maintenance strategy is designed to encompass the diverse range of activities that their maintenance staff undertake and would therefore be relevant to a large range of organisations. Furthermore, many of the management techniques that Tarmac adopted have already been used by a large variety of organisations.

4. References, resources:

- http://www.tarmac.co.uk/ - date accessed: 6th May 2011