1. Case metadata

- **Country/ies of origin:**
  Austria

- **Year of publication by agency:**
  2009

- **Sector:**
  C24.1.0 - Manufacture of basic iron and steel and of ferro-alloys
  C27.9.0 - Manufacture of other electrical equipment

- **Keywords:**
  24361C Good Practice
  24401C Case Studies
  19641D Risk Assessment
  00401E Knowledge Management
  20641D Worker Participation

2. Organisations involved

VAE GmbH

3. Description of the case

3.1. Introduction

The VAE Group is the world market leader in the production of turnouts, turnout-specific superstructure materials and the associated hydraulic setting systems as well as electronic monitoring devices. The holding company VAE GmbH is based in Zeltweg, Austria. It is responsible for coordinating and managing the group, which comprises 38 production sites with some 4,200 employees on six continents. Regarding the level of safety at work and health protection, the VAE sites start at different levels. This is mainly due to different industrial and political national histories of the countries the sites are based in. The knowledge, acquired experience and achieved outstanding success with integrated safety and health management of the VAE GmbH are based on thorough identification and assessment of hazards. This knowledge and experience is to be communicated to the sites of the VAE Group all over the world.

3.2. Aims

The board of directors of the VAE GmbH as well as the managing boards and employee representatives of all subsidiaries wanted to identify and remove the most relevant hazards with regard to the occupational health and safety of their employees. In addition to avoiding serious accidents or occupational illnesses, an integrated approach to the prevention of relevant environmental damage and energy wastage had to be taken. In order to achieve this aim, it was...
essential to combine the knowledge and experience of the most developed sites and make them available to all other sites. Thereby, each site did not have to go through a development and learning process to identify all hazards and develop solutions itself, whilst accidents and damage continued to occur.

The VAE-Health Safety Environment (HSE) approach was developed to reduce occupational accidents and diseases and consisted of the “VAE-HSE-Guidebook”, the “VAE-HSE-Software” as well a “VAE-HSE-Expert Meeting”:

The “VAE-HSE-Guidebook” aimed at identifying typical problems regarding health, safety and environment as well as possible ways of solution in the business of turnout-production. It was developed to raise awareness among employees and managers at the sites and to help them to identify potential risks. It was addressed to all existing sites of the VAE Group in order to enable an exchange of HSE-related experience. To learn from each other and to avoid risks for the employees and the environment as well as high future costs due to avoidable efforts for HSE-related remediation activities and liabilities were essential targets of the VAE Group.

In addition to the “VAE-HSE-Guidebook”, the so-called “VAE-HSE-Software” was developed. This software could be made use of to avoid the following problems when administrating health, safety, and environmental tasks: missed checks and deadlines, high efforts of reminders, no clear responsibility, no clear task / target, no legal certainty due to missing saving of evidence and lack of recording as well as high effort for investigations if duties were fulfilled at all. A positive secondary effect of the “VAE-HSE-Software” was to delegate some work from the overloaded management staff to the foremen and / or workers.

The aims of the “VAE-HSE-Expert Meeting” were to train the nominated persons for HSE-coordination of the sites regarding the contents of the guidebook and use of the software, discuss (potential) problems and solutions in direct way as well as the transfer of knowledge and experience to one another. Additionally, the face-to-face contact aimed at allowing better communication and networking in the future.

3.3. **What was done, and how?**

In order to achieve the aim of avoiding occupational accidents and / or diseases, a comprehensive risk assessment programme was developed by the “VAE GmbH”. This comprehensive programme consisted of the “VAE-HSE-Guidebook”, the “VAE-HSE-Software” as well as the “VAE-HSE-Expert Meeting”:

**The “VAE-HSE-Guidebook”**

The identification of risks, methods to assess risks, solutions suggested and checklists developed by the sites and other documents were scanned for elements relevant for the industry of turnout business representing typical characteristics of steel processing and of the machine-construction industry. Afterwards all relevant information was summarized in the form of a structured guidebook. The potential risks and solutions which can be found in the guidebook originated from diverse sites from all over the world, so that all sites were able to learn from each other. The “VAE-HSE-Guidebook” also consisted of information and pictures illustrating technical and organisational procedures. Thereby, the procedures were often presented in direct comparison of correct and incorrect examples and pictures helped to impart knowledge.
In total, the “VAE-HSE-Guidebook” consists of approximately 200 pages structured in nine chapters. The chapters consist of information about the following topics: 0) General information, 1) Soil and groundwater (including storage of chemicals and design of machinery), 2) Water and waste water, 3) Air emissions concerning employees (health and safety) and environment, 4) Work-space impacts and machinery safety (including CE-legislation (for EU) and safety devices), 5) Legal demands, permits, and legal compliance, 6) Waste management, 7) Buildings, cranes and infrastructural systems, 8) Integrated management systems, maintenance, and records as well as 9) Energy management.
Generally, information related to potential health, safety and environmental risks and associated solutions can be found in the “VAE-HSE-Guidebook”. If the improvements remain on a voluntary basis, the information is written in black colour and the improvements are to be implemented as soon as possible in the framework of the HSE-programme on site.

However, about 200 issues are of such importance that global minimum standards are given. These “VAE-HSE Minimum Standards” are binding for the sites, appear in red colour and time targets to be met are listed as deadlines in square brackets. The minimum standards apply in particular where national standards do not exist or are less stringent.

The guidebook had to be updated periodically with new findings, ideas and solutions in the future. All sites of the “VAE GmbH” were invited to integrate issues and solutions they consider to be of potential interest also for other sites of the “VAE GmbH” into future revisions of the document; most of the sites were motivated to be included in the guidebook with the best possible examples. The future development of the guidebook will mainly focus on expanding these site examples, so that all sites are able to learn from each other. In the end, a very specific up-to-date guidebook for health, safety, and environmental affairs will result.
THE “VAE-HSE-Software”

After the creation of the “VAE-HSE-Guidebook” the “VAE-HSE-Software” was developed. The software aimed at organising and documenting the tasks to be performed at the sites.

The web-based “VAE-HSE-Software” was essential for the administration of the 200 HSE minimum standards listed in the Guidebook. Regarding the minimum standards the task, the time frame and the responsibility were entered into and the execution was documented in the software. The software preserved and stored tasks, knowledge about measures to be taken and outstanding points. Thereby, the individual knowledge of a few people was converted into company knowledge. Thus, the “VAE-HSE-Software” administering both one-time and recurrent activities provided a reporting, an administration, an educational, as well as a knowledge tool.

Figure 3: VAE-HSE-Software-Global Reports

Source: VAE

In addition to the minimum standards which were stored by the VAE GmbH, the sites were asked to make use of the system by establishing measures, permit conditions and national laws, local HSE targets and programmes, etc. These aspects were called self-set tasks. Thereby, the software did not only handle one-off measures; 95% of the tasks recurred. Even if a specific task (e.g. measurement) had been completed, the task had to be repeated. This was due to being part of a monitoring programme and as the measuring concept itself had to be assessed and adjusted regularly, to take account of new operating conditions (new processes, materials, workplaces, etc.) and legal standards (measuring technique, limit values, parameter definitions, etc.). The need to update applied to the elements of evaluation such as e.g. exposure measurements, plant safety checks, occupational health examinations for employees, etc. The workers in charge and performing a large number of different tasks were supported by the “VAE-HSE-Software”, as they were able to pre-set the testing frequency. This pre-set included the description of the aspects to be taken into account for the fulfillment of the

EU-OSHA – European Agency for Safety and Health at Work
The inspection reports could be used as status-reports for legal compliance, as it allowed to track the measures taken and to see the continuous improvement.

The “VAE-HSE-Software” consisted of an integrated system reminding the user with regard to deadlines, changes, and newly entered information. The system offered an integrated file-management and was data-based, so that source-documents, plans of machines / buildings could be linked with each other.

The risk assessment documents and checklists as well as the content of the guidebook and the implementation software were mainly tested at the production site of the VAE Eisenbahnsysteme GmbH in Zeltweg which is an Austrian subsidiary of VAE GmbH employing about 630 persons.

THE “VAE-HSE-Expert Meeting”

For the first time, site managers were appointed, informed and trained to be able to act as HSE experts in the “VAE-HSE-Expert Meeting” in Austria in June 2008. Two additional meetings were performed for additional HSE-Experts in January and March 2009. The next “VAE-HSE-Expert Meeting” is scheduled for June 2010.

Figure 4: Participants from 6 continents

The appointment and subsequent training of HSE experts was vital to the success of the global VAE-HSE Management. Company representatives from all six continents took part in the first “VAE-HSE-Expert Meeting”. The experts exchanged knowledge and experienced in a structured way: E.g. guest reports of several plants were held. Furthermore, they discussed the “VAE-HSE-Guidebook” and introduced the “VAE-HSE-Software”. Thereby, training was given on its use. In addition, the experts had a look at the Zeltweg production site, in order to see the HSE-examples working in field. Last, but not least face-to-face contacts were initiated between the experts. The meeting revealed that in addition to the knowledge and good solutions of the traditionally advanced European countries, a lot of aspects related to health and safety could be learned from the ‘new’ European member states and from other continents.
3.4. **What was achieved?**

- The feedback on the “VAE-HSE-Guidebook”, the “VAE-HSE Software” as well as on the “VAE –HSE-Expert Meeting” was very positive.
- The VAE sites worked on implementing the tasks of the guidebook in a very motivated way.
- By integrated planning as well as by taking account of health, safety, environment, and energy from the very beginning investment and operating costs could be avoided. Each year, machines are purchased and buildings are modernised or built, as it would require more complex and expensive work to convert them to comply with safety standards. Therefore, it could be assumed that hundreds of thousands of euros could be saved each year.
- The measures associated with VAE-HSE prevented accidents and ill health. Besides a strong reduction of risks and exposures, the accident rate was reduced by 60% at the VAE Eisenbahnsysteme GmbH from 1996 to 2007.
- The down times were reduced. The wage and non-wage labour costs, loss-of-production costs and associated administrative costs of accidents can be regarded as a relevant source of savings: The “VAE Eisenbahnsysteme GmbH” has achieved an annual saving of approximately EUR 400,000 resulting from a 60% reduction in the accident rate.
- The reduction of accidents and their consequences helped to utilise maximum production capacities and adhere to delivery deadlines. Since lead-times are short in today’s project-based business environment and as non-observance often results in cost of fines and loss of orders, this is essential for the manufacturer as well as for the customer. Furthermore, the risks of liability and penalties were reduced by the reduction of accidents. These risks included administrative penalties, demands for compensation from civil court proceedings, and criminal consequences including relevant legal costs. Last but not least, the insurance premiums could be reduced by decreasing the number of accidents – in particular, in countries not having fixed premium regulations.
- Besides direct monetary achievements, the company has advantages when competing for qualified personnel, as the best employees will not seek employment with companies having bad basic conditions and put their health at risk. In addition, the positive commercial image related to positive safety and health conditions of the company was advantageous. Last but not least, the company identified with its employees, their future and their families in the long term.
- Thus, as many dangerous situations, accidents and diseases caused by work and environmental impacts can be avoided in future and additional money will be saved, the overall cost of approximately EUR 80,000 for developing the “VAE-HSE-Guidebook” and “-Software” as well as holding the “VAE-HSE-Expert Meeting” will soon pay off.
- By using knowledge from other sites the cost of duplicating development or failures could be avoided. If each site had developed its own “VAE-HSE-Guidebook” and “VAE-HSE-Software”, the costs would have been approximately EUR 2.5 million.

3.5. **Success factors**

The “VAE-HSE-Guidebook” was sent to the chief executive officers of the subsidiaries with a direct letter signed by the complete board of the VAE GmbH.

The joint efforts of the employees (for the knowledge of risks and suggested solutions contributed to the assessment), the experts (for the professional assistance of safety professionals, safety representatives, and occupational health practitioners), the representatives of the interdisciplinary interfaces (quality management, maintenance, construction, production technology, logistics, etc.) as well as of the staff representatives (for their intensive support of workers and administrative staff) enabled the development of a global HSE management system. Moreover, the representatives of the
authorities (Trade Authority, Industrial Inspectorate) and the Austrian Accident Prevention Institute (AUVA) contributed and gave input to the “VAE-HSE-Guidebook”, “-Software”, and “-Expert Meeting”.

3.6. Further information

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The Guidebook is available as a template for interested parties. The Software is sold internationally by the following manufacturer:

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Lohnsteinstraße 36
2380 Perchtoldsdorf
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Tel: +43-1-866-32-0
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Web: www.gutwinski.at

3.7. Transferability

Due to the strong reduction of risks and exposures as well as due to the reduction of the accident rate, there should not be any doubt that appropriate measures would be successful at other locations. The programme’s transferability is proven at the Austrian production site of VAE Eisenbahnsysteme GmbH.

The entire VAE-HSE approach was presented at several public presentations and within the Austrian voestalpine-concern employing over 40,000 people worldwide. The feedback showed that the approach can be recommended and transferred in particularly, to enterprises with several production sites in one country, all over Europe or even worldwide. The VAE approach can be amended and therewith, could not only be used in other member states, but also at other workplaces and in other industry sectors. Thereby, extracts of the guidebook could be used as pattern.

The risk assessment programme is to avoid costs for the development of the same procedures and solutions for several times especially in groups consisting of two or more sites. Thus, it will especially support smaller sites within a group due to knowledge transfer.

4. References, resources:

Information provided by the company/organisation in the framework of the Good Practice Award Competition 2008/2009.