

# Implementing a work-situation approach to improve performance

ABS Consulting

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Human errors have been significant factors in almost every accident, equipment shutdown or quality problem in industrial and manufacturing facilities. The lack of an established management system is the cause of most human errors. Facilities must investigate and analyze near incidents (or near misses) so that root causes are determined and corrective actions are implemented to prevent recurrence.

When contemplating ways to improve human performance, managers must address two basic types of errors — those for which primary causal factors are individual human characteristics unrelated to the work situation and those for which the primary causal factors are related to the design of the work situation. Employing appropriate hiring and job assignment policies is an important means for managers to reduce the causes of internal human characteristics error. But a competent worker could still be emotionally upset or fatigued and commit an error.

The vast majority of human errors result

primarily from the design of the work situation, which managers can directly control. By providing the resources necessary to identify and eliminate error-likely situations, managers can reduce the frequency of human errors. This strategy is called the work-situation approach. To maximize the benefits of such a strategy, managers should solicit workers' input into this strategy at every opportunity.

The work-situation approach involves the following five elements:

- Implement good human factors related to engineering of equipment, control systems and the work environment. Many human errors are caused by equipment and work environments that were not initially designed with an emphasis on how humans would interact with them. Therefore, a new system-design plan should account for all necessary operational and maintenance behaviors through proper labeling and visibility; accessibility for use, repair, removal and replacement; proper inspection and testing; and availability of spare parts and tools.

- Provide clear, accurate procedures, instructions and other job aids. Many human errors can be prevented by making sure those

clear, accurate procedures and job aids are available and appropriately used by all workers. In addition to reducing workers' reliance on skill and memory to perform a task, procedures and job aids assist in decision making and help ensure that a given task is performed consistently. Job aids concisely organize information needed to diagnose problems and plan tasks, and assist workers in performing tasks that involve numerous steps.

- Provide job-relevant training and practice. Training ensures that workers possess the basic skills necessary to effectively perform their functions. Proper training of workers is critical to reducing human errors. Several types of training have proved most effective in reducing human errors, including initial skills training, refresher training and management systems training. Classroom knowledge-based training provides the basic expertise, technical background and understanding of the procedures. Initial skills training is a bridge between the knowledge-based training and on-the-job performance. It is generally conducted in the classroom and supplemented with on-the-job experience, and should be viewed as the means for preparing workers for real experiences they

will routinely encounter.

- Provide ways to promptly detect and correct human errors. Many human errors can be prevented by implementing certain administrative controls and systems to promptly detect and correct human errors.

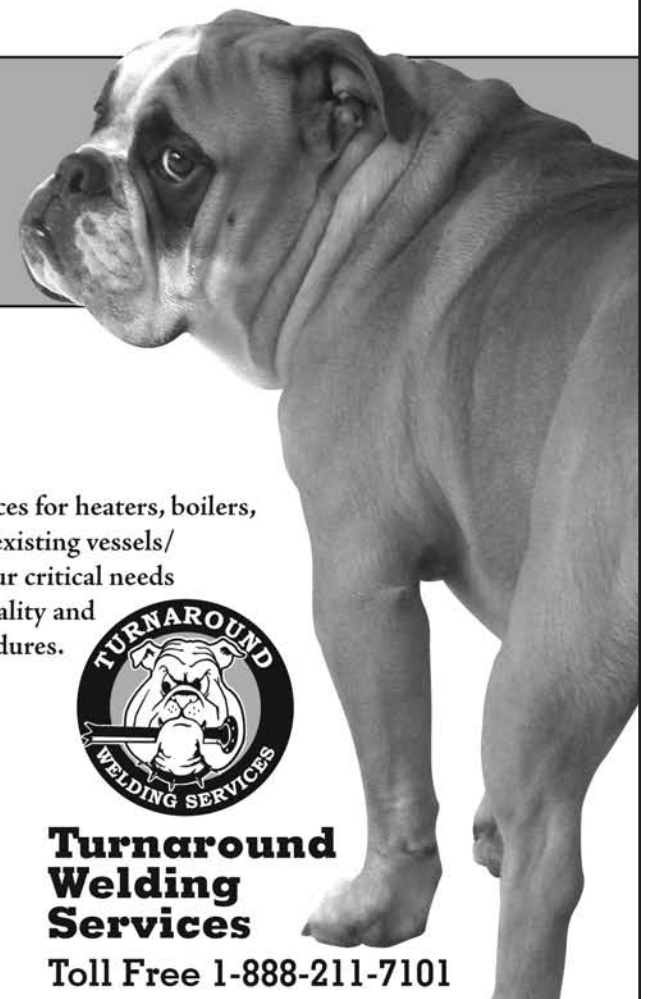
- Provide avenues for workers to meet their social and psychological needs. Psychologist Abraham Maslow recognized that "system factors," such as equipment design, procedures, training and organizational culture, are keys to motivating workers.

Most system performance problems and incidents are the result of human error. However, many of these errors are the result of error-likely situations created in the way systems are designed, operated or maintained; procedures are written; and training is conducted. Allocating time and resources to understanding human factors, and identifying and eliminating error-likely situations through methods such as the work-situation approach, will significantly help to improve overall system performance and process safety.

For more information, contact James J. Rooney at [jrooney@absconsulting.com](mailto:jrooney@absconsulting.com) or call (865) 671-5814. □

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