



Increased Safety and Lower Costs are not mutually exclusive goals: A Digital Safe System of Work Case Study

HSE Manager, Mr. R. Pijtak of Centrica Energy Netherlands B.V.:

“The Permit Vision project has been a tremendous success. Operational Management has a good overview of work being carried out and offshore personnel accepted the system as if it were their own.

Safety and Awareness of multiple tasks have increased tremendously due to the automated conflicting situation detection. The Permit Vision Tool has made the process much simpler; it works fast and accurate while keeping good structure and control. Effective Planning, Isolation and Risk Management are key advantages to implementing the Permit Vision Tool. Especially the Isolation Management module is key in delivering a robust system for Permit and Isolation Management.”

Introduction

The E&P and other hazardous process industries are investing a lot of time and resources in the maintaining and continuous improvement of safety on worksites. Safety improvements and cutting costs are often seen as mutually exclusive. This article will illustrate that safety and efficiency are not necessarily at odds with each other. We will look closely at Hazardous Worksite Management and the challenges the industry faces herein. Problems, mistakes and erroneous methods currently in use will be reviewed, after which the solution will be presented by means of a real life case study.

This case study will outline the safety benefits and cost savings made by utilizing a digital Safety System of Work.

Safety Practices

To minimize risks and maximize safety, a number of processes and systems have been implemented. These processes and systems are in place to ensure that work adheres to legislative safety measures. Examples are respectively: (paper) Permit-to-Work system, Task-Risk assessments and Isolation Management.

These systems and associated processes are designed to ensure safety by making workers aware of the risks accompanying the task. However, these systems and processes contain a number of weaknesses. Examples of such weaknesses are bureaucratic, administrative and communicative challenges; time consuming, hard to accurately plan activities; loss of rigor due to too much flexibility, and the lack of awareness-building. Another weakness of paper systems is the lack of integration with other safety systems such as Isolation Management and Risk Assessment, and the lack of fast and clear overviews. All of these examples challenge the safety of workers. They will, in turn, be discussed.

Bureaucratic Challenges

Examples of bureaucratic challenges posed by a paper-based safety system are form filling, copying, delay due to signatures, waiting for appropriate staff, etc. Although these steps are absolutely mandatory to ensure a safe system, they burden staff with time consuming duties. Tasks not directly contributing to the actual job make workers prone to skip steps and required measures.

Administrative Challenges

Administrative challenges are illustrated by the handling of documents. Given the large amounts of Permits being issued they increasingly consume physical room and time. Documents can get lost and simply archiving documents consumes valuable time. Retrieving documents can be troublesome if archiving is poor. A result of poor administration is that lessons learned from previous tasks disappear in the 'heap of files' increasing the risk of making the same mistakes over and over again.

Challenges and Lack of Overview

Management and workers require an overview of tasks being performed onsite so Permits and related documents tend to be displayed in a central location. This is necessary to work safely and effectively. The physical overview of all Permits requires staff to visit the central room after a change is made or work gets suspended. This is not only time consuming but results in the potential deviation from rules. Even in the most modest-sized plant changes take time to get communicated but more importantly, there is no fast, accurate and clear overview of all work carried out. All documents must continually be checked to avoid conflicting situations; especially during Plant shutdowns this imposes a challenge.

Planning

As discussed above, Permits are kept in a central location in order to keep track of changing and potentially conflicting situations. Accurate planning of activities on any day becomes extremely time consuming, optimizing the planning even more so. Effective and accurate planning for future activities, like Plant shutdowns, is virtually impossible, due to, for example: conflicting work leading to personnel waiting on outside contractors or vice versa. Moreover, ineffective and inaccurate planning increases the likelihood for mistakes, resulting into a higher risk of accidents.

Insufficient Rigor

The more flexible a process, the more likely employees are to skip steps or take shortcuts. Rules imposed to see that employees follow the entire process of a paper-based system are often too flexible. The goal of the process is not creating a Permit but creating awareness and understanding of the risks involved in carrying out the work. Shortening this process in any way, compromises safety.

Integration

There are many separate systems associated with a Safety System of Work. Apart from the Permit to Work system, also Isolation Management, Risk Assessment and Dangerous Goods Management are systems associated with a Safety System of Work. All these systems are loosely associated with each other via rules, processes and cross references. The rules, time spent and complexity of this process, resulting in even more paperwork, are again more often seen as permission seeking exercises rather than awareness building ones.

There are many more issues surrounding the industry which influence the Safety System of Work: Compliance

with (local) legislative requirements (European Union, OSHA or other depending on location), time pressure, aging assets (complex maintenance work), cost effectiveness, the industry becoming more and more complex, the use of outside contractors with no local installation knowledge and corporate reputation, to name but a few.



Image: Centrica working with Permit Vision

Case Study

The subject of our Case Study is Centrica Energy Netherlands B.V. Centrica is a subsidiary of Centrica plc, a leading UK Oil and Gas Exploration and Production company with Operations in the North Sea on the Dutch and UK continental shelf.

The findings of an internal review showed the current digital Permit to Work system, in use at Centrica, didn't lead to the desired increase in safety and productivity. Centrica identified a number of key elements required for their Operations, including integration of Isolation Management and Task Risk Assessment with the Permit to Work system.

Management at Centrica understands the benefits resulting from a well-functioning Safety System of Work, but at the same time realizes that personnel working on site will have to accept the system for it to be a success. Centrica engaged eVision to (re)design a common workplace safety process and implement the digital Permit to Work software with all related systems.

About the New Solution

Permit Vision, a web based Permit to Work system, was chosen by Centrica. Permit to Work, Isolation Management and Risk Assessment are all integrated into one system, creating greater Operational effectiveness and awareness.

Problems and Implementation Goals

The key to success was the frontline Operational people. The usability of the system was of utmost importance. Centrica had some clear goals before changing to a new system; Effective Isolation Management was top priority, and it had to be integrated with the Permit to Work system. Centrica needed direct insight into the Isolation Register while creating Work Permits. Another important aspect for Centrica was the integration with Task Risk Analyses.

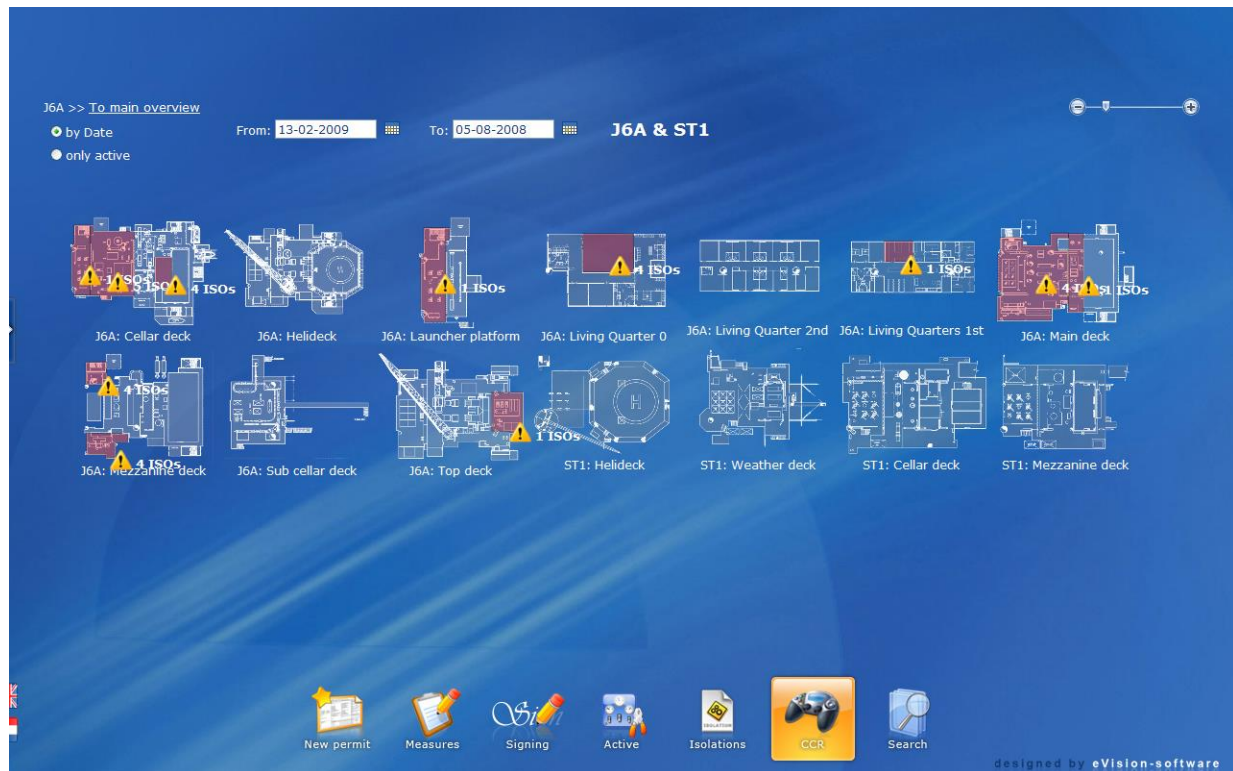
Where paper systems make it increasingly hard to manage and coordinate multiple, simultaneous work activities the new Permit to Work system needed to detect conflicting situations at Permit Planning and creation time, thereby reducing risk and increasing productivity.

Another important aspect of the electronic Permit to Work system was that it followed the award winning DeltaLinqs and NOGEPa standard. This standard is used by many Operators including all Operators on the Dutch North Sea and many other process industries including all companies in the Botlek (Rotterdam Industrial Area). The NOGEPa standard has won the International Regulators Forum (IRF) for outstanding improvements in global offshore safety.

Many employees in the E&P industry, and other process industries, are reluctant to move to digital systems. Workers feel that a new software system, in this case a digital Permit to Work system, will impose yet another burden on their already stretched work load. Quite naturally their belief is based on previous software experiences; the hard to use, digital systems introduced over the years have left their mark, so to speak.

Another problem paper-based systems face is workers complaining about the amount of time spent on creating, checking, signing and finding Permits. Not only from a cost savings perspective this should change, but more importantly, this can lead to a lack of focus and awareness. Instead of building risk awareness the process gets viewed as a permission seeking exercise. Moreover, a paper-based system makes planning and coordinating for future work on even the smaller installations hard and time consuming, again resulting in even more conflicting situations and reduced productivity.

“A good Permit to Work system prevents incidents by ensuring that risks involved in any work are clearly understood and managed” PtW group UKCS



Actions

Although Centrica used the paper-based NOGEPa standard for their Permit to Work, some subtle differences in safety policies and processes between the different installations remained. eVision's Permit to Work specialists worked alongside Centrica's frontline Operational people to determine the exact processes and differences therein while working together with Senior Management, Centrica's safety policies and risk assessments were reviewed.

The complete software system was configured to meet all Centrica's requirements; capturing local installation knowledge combined with existing best practices giving the system a tailor-made feel. The Permit to Work system has the power of an off-the-shelf product, with the flexibility of an in-house design.

One of the major strong points, of all eVision's software systems, is the focus on usability. Permit Vision is designed with the end user in mind, making the system easy to use, resulting in instant user acceptance and success.

Results

The system had a good company wide acceptance; the offshore crew praise the system for its effectiveness and simplicity. With Permit Vision Site-Workers have an efficient and effective tool guiding them in the process of building risk awareness. Permit Vision facilitates personnel to do the job safely and effectively, while Management has clear and simple overviews of ongoing activities enabling them to measure and analyze performance effectively.

Permit Vision reduced risk for outside contractors with less knowledge of the installation, by capturing local installation knowledge and lessons learnt.

Due to Permit Vision, shift handovers have become much simpler. Accurate and real-time overviews and a simplified process for handovers have greatly reduced the time spent on the entire process of shift changes and have made Risk Management more easy and effective.

Concurrent Operations being carried out on many different systems simultaneously throughout the entire installation have become easy to manage, thereby reducing time and cost spent on re-planning and workers waiting on each other due to conflicting situations.

Integration of Isolation management with the Permit to Work system has greatly improved the Isolation process. The digital Isolation Register gives direct insight into all outstanding Isolations. An external Audit, held at Centrica in 2008, showed a 100% accuracy on all Isolations.

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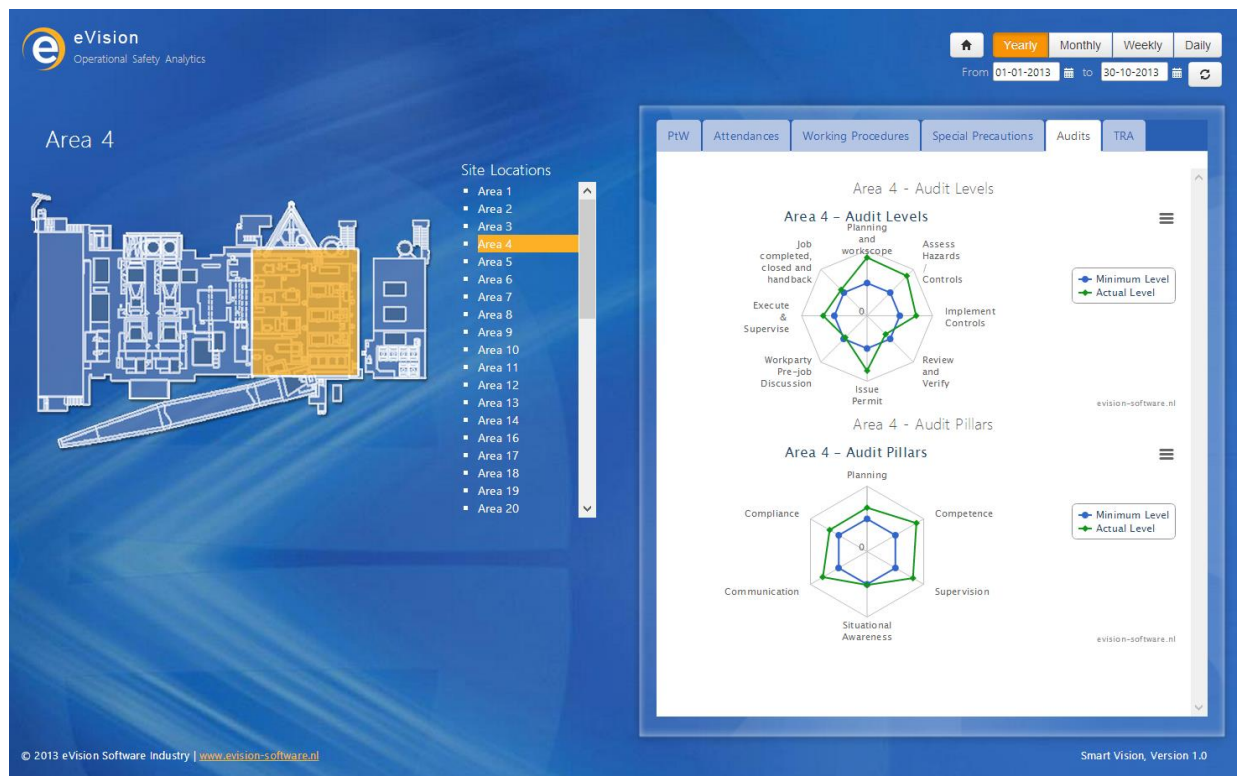


Image: KPI Dashboard – Analyzing made Easy

Conclusion

Centrica's case demonstrated that for any digital solution the key to success lies with the end users. The entire system must address the personnel who are actually going to work with the system.

When properly designed and implemented, advanced electronic solutions can have an incredible positive impact. A win-win situation can be created where site safety gets improved while cost reductions are realized.

More Information

If you are interested to know more about Permit to Work implementations, and how our Safety and Business benefits have helped other companies, then please visit our website at <http://www.evision-software.com>. There you will also be able to find a Contact page where you can get in touch with one of our Representatives.