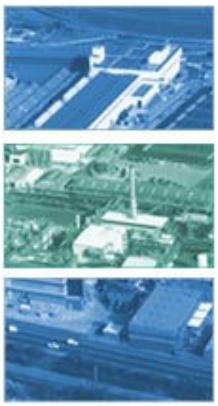
Merck Case History –

MSD at Ponders End, UK, adopts PCMS electronic Permit to Work system from aSap

Company Overview

Merck Sharp and Dohme (MSD) Ltd is a subsidiary of Merck & Co. Inc, a global research-driven manufacturer of pharmaceutical products. With approximately 60,000 employees, Merck conducts research at 11 major research centres in the United States, Europe, and Japan, manufactures products in 32 facilities and sells products in approximately 150 countries.



The MSD manufacturing plant in Ponders End in Middlesex is responsible for producing the active ingredients for some of the Company's most important products.

The site has been operational since 1957, and has grown in line with the increasing need for a range of top-quality bulk chemicals for Merck medicines. Today, processed chemicals produced at Ponders End are shipped to manufacturing sites around the world, and many of them will be used in the Cramlington site in the UK to make some of the Company's best-selling products.

The Ponders End facility has a distinguished record for safety and environmental sensitivity and has been singled out eleven times for the British Safety Council's 'Sword of Honour' award.

Site Environment

Ponders End comprises of three main Production facilities, for manufacture of bulk intermediates and final products. There are also a lot of supporting departments like Safety, Engineering, Quality Operations, Technical Operations, Utilities and Maintenance for performance of regular maintenance and ongoing operational supports in running the facilities under various Production campaigns. Ponders End has always been proud of its Safety record based on their established site HSE policies and procedures, derived from Corporate guidelines and standards.

The Engineering department is responsible for the scheduling of ongoing planned maintenance activities, together with continuing support in addressing breakdowns within the Production facilities. The Maintenance activities are controlled and assisted with the aid of a MAXIMO system. Maintenance and Production personnel can access this system.

One of the challenges that Ponders End have faced prior to PCMS introduction was capabilities of being able to monitor in real time of all the permit-to-work (PTW) activities within the facilities.

Furthermore, the accountability of all the conflicts that might arise as a result of several permits (of same or different types) being active at the same time.

In addition, even with Ponders End's current Safety standards, there was always the possibility of incurring human errors during permit generations using the paper based permit system, which could only be captured as a result of audits and independent reviews.

The Requirement –

Listed below are the main requirements that were identified during the initial assessment of Ponders End:

- Ensure adherence to best practice safety methodology and compliance with Existing site safety policies, HSE, SOP and Risk Management frameworks
- Real-time access, generation, monitoring, control and management of the whole PTW system
- Ability to instantly identify and resolve any permit conflicts at source
- Interface capabilities with existing MMS/ERP tools
- Integration capabilities with SOP, MSDS and PPE documentation
- Ability to import relevant legacy data
- Ability to accessing the system remotely
- A secure central repository with visibility of PTW status and audit trail at all times
- A comprehensive PTW analysis and reporting capability
- A tamper-proof evidence of all PTW authority and accountability
- Easy to use by all operators and managers
- System must be scaleable and extensible for single site, multiple site and trans-national operations, with multi-lingual capabilities.

The Solution

Mr Nigel Burgess, Merck Ponders End Environmental Health and Safety Manger stated:

"Obviously we considered developing our own in-house software, but the availability of the specialist know-how required and the cost and time involved to create, test and integrate the software was a daunting prospect. We were delighted to find that aSap was able to deliver all that we needed in their PCMS package.

Our operators like its ease of use, our supervisors like the way they are able to instantly control and manage the PTW workflow, and our managers and business directors appreciate the facility of being able to view in real- time the status of all permits through the permit monitoring system, access audit trail reports of the whole process in real-time, anytime and from any location in the world.

Our Company views any accident as unacceptable, but is justifiably proud of the sites safety records and the degree to which a safety culture has been inculcated amongst employees and filtered across to the contractors.

We have been impressed with the attitude, expertise and professionalism of aSap's people who have been working with us to integrate the package and provide training for our user group. Although it is difficult to quantify the cost savings gained at this early stage of our deployment of PCMS (Permit Control and Monitoring System), the operation benefits we are enjoying are very real. Our adoption of PCMS has transformed the way we manage our safety management and resulted in real time savings."

Case History:

This section provides a high level summary of the use of PCMS at Ponders End to date. It includes the starting point, continuous reviews and modifications, together with training and familiarisation of the use of PCMS throughout the Production Facilities at Ponders End.

Overview:

In 2003, aSap limited provided a high level presentation on its PCMS electronic permit to work system to Ponders End Management. Subsequently, an agreement was reached for Ponders End to trial the system based on their own Safety processes and requirements. There was a period of 3-4 weeks involvement between aSap and allocated individuals at Ponders End to gather the requirements, together with Configuration and implementation and the required hardware. It was agreed to implement the three commonly used permits which were Pipeline, Flame Spark and Confined Space Entry permits. This involved invaluable time and effort from Production & Safety departments. Furthermore, all relevant Production and Engineering personnel were trained in the configured PCMS system. Training sessions were arranged for specific day and shift personnel. The duration of each training session was for 2 hours. Below are more details in the trails that were performed within each of the Production facilities.

Production Facility:
Trail 1:
The trail was arranged to be run in conjunction to a Production campaign within one of the multi-purpose Production facilities. The PCMS system had all the relevant equipment details incorporated as part of the initial configuration. This was transferred from a list generated by the Maximo system. The trail was agreed to run parallel to the existing paper-based system. This was to ensure a sound comparison could be made between the two systems. Furthermore, this was an opportunity to highlight the advantages of PCMS compared to a paper based system.

Each supervisor and designated operatives within each Production shift (permit issuers) together with their shift fitters/electricians (permit receivers) were asked to generate a minimum of 5 permits per shift over the whole period of the three months. aSap was constantly monitoring the process and registering feedback from the users. This also involved continuous dialogue/consultation with the Safety and Production departments.

At the end of the three months trial period, all the requested and agreed changes were immediately implemented to further meet the specific requirements for Merck, Ponders End.

This trail period did not include the use of the hand-held computer and the use of the bar-coding functionality.

Some of the main issues that were raised were:

- Permit generation at source – this was the assurance that the assessment could be carried out at source.
- Immediate access/visibility to Material safety Data Sheets (MSDS)
- Electrical and Mechanical isolations
- Integration into other systems, mainly MAXIMO for capturing work order information and avoiding duplicate data entry
- The need to be able to perform a risk assessment

All the above issues were addressed and implemented for the next trail period below for the next production campaign.

Trail 2:

This second trail was arranged to run in conjunction with a bulk intermediate campaign also within the multi-purpose production facility. The PCMS system had all the relevant equipment details incorporated as part of the initial configuration. This was also transferred from a list generated by the Maximo system. The trail was agreed to run parallel to the existing paper-based system. This was to ensure a sound comparison could be made between the two systems. Furthermore, this was an opportunity to highlight the advantages of PCMS compared to a paper based system.

Each supervisor and designated operatives within each Production shift (permit issuers) together with their shift fitters/electricians (permit receivers) were asked to generate a minimum of 10 permits per shift over the whole period of the three months. aSap was constantly monitoring the process and registering feedback from the users. This also involved continuous dialogue/consultation with the Safety and Production departments.

There were no major issues raised within this trail. Some of the main issues that were raised in the previous trail were addressed by:

- Permit generation at source – this was the assurance that the assessment to be carried out at source – aSap introduced the use of an intrinsically safe hand-held computer

(Symbol PDT8100 Intrinsically safe)  www.symbol.com

- Immediate access/visibility to Material safety Data Sheets (MSDS) – aSap introduced a link to all the relevant MSDS's available within the network, for the facility
- Electrical and Mechanical isolations – aSap introduced a mechanical and electrical tabs listing all the associated mechanical and electrical isolations per vessel. This information was transferred from MAXIMO
- Integration into other systems, mainly MAXIMO for capturing work order information and avoiding duplicate data entry – aSap developed a bridge module which connected the MAXIMO system to PCMS. This is ONLY one-way traffic from MAXIMO to PCMS. It enables the search for existing work orders awaiting for permits to be generated. In addition, it can populate the relevant sections of permits with data from MAXIMO.
- The need to be able to perform a risk assessment – aSap developed a risk assessment application as a tab within PCMS. This involved updating the workflow to include the risk assessment and isolations at the start of permit generation.

Production (another) facility:

As a result of the successful trials within the multi-purpose Production facility, Merck decided to rollout PCMS within one of their main Production facilities in 2004. This comprised of all three floors within the facility, together with the outside area. This facility comprises of over 2000 items that was added to the PCMS system from MAXIMO.

Bar-code tags were placed in each floor and outside to identify the location for the assessments to be performed using the hand-held computer. This ensured that the assessment part of the permit generation was done at the correct source.

The system was implemented within the Ponders End Intranet. Thereby, all the relevant authorised managers and other assigned personnel have local/remote access to the PCMS monitoring system. In addition, only authorised permit issuers and receivers (that have successfully completed aSap training sessions) have access to the PCMS permit control system. A real case / hands-on training sessions were performed with all the authorised individuals.

aSap is providing a continuous support in the form of the usual 24/7 x 365 days telephone/e-mail and web support , plus a weekly site visit to ensure immediate response and assistance for a smooth implementation and ongoing support.

Production Go-Live:

Following the successful trials of PCMS as discussed above, the system was rolled out at all production facilities in Ponders end. This meant that paper permit systems were no longer in operation and could only be used in an unlikely event where PCMS was not available.

A system administrator from Merck Personnel was assigned to manage the day to day running of the admin tasks, such as user management, adding, deleting or editing user data, changing of passwords, input and maintenance of equipment and gas analyser data, setting up conflicts between vessels etc. He has gained invaluable insight into the working of PCMS and is now an expert providing all related admin tasks without any issues.

aSap adopted the train the trainer approach in providing refresher training and identified that the system admin was the ideal candidate for the role of trainer, subsequently the admin took charge of providing onsite refresher training to all users. This decision had the desired effect as the system admin could provide this service on demand, at any time, to all shifts rather than sending personnel on course which would have been a much more complicated task.

As with any computerised system, over time requirements change and aSap needed to put in place a process to deal with any required changes within PCMS. In order to achieve this, aSap included development time within a comprehensive support contract to address this issue and has created a BCR (Business Change Request) process to deal with any new requirement for PCMS. To date aSap has dealt with more than 7 BCR's successfully during 2005-2006 period.

As part of the support service aSap provides a monthly report to Merck management providing detailed information on the efforts spent on Merck issues with PCMS and their effective resolution.

All users have indicated their satisfaction of the system, from production supervisors to fitters and managers. The authorisation of the permits occurs at the time when the permit is required, avoiding loss of time and delays to fitters and contractors hence increasing efficiency and reducing time wasting.

Management have been quick to praise the system for the fact that it gives them an easy access to all their permit status instantly. In addition, several different reports from historical data can be created by the PCMS system, something which would have taken a long time in a paper system. Furthermore, the reliance that the company is protected with secure archiving of permit data for many years to come.

In an event of an emergency, unaccounted workers involved with active permits could easily be located within PCMS in order to assure a faster response time by the site emergency team.

i-roc 610-EX intrinsically safe unit

With the advancement of technology for mobile hand held devices over the period of 2005 -2006 a decision was made by Merck to upgrade the hand held computer units from Mono to Coloured giving users better resolution and much more clarity of vision, for this reason aSap introduced i-roc units to Ponders end on 01/12/2005 after a comprehensive period of development and testing PCMS system on the new hand held hardware. The feedback from users suggests that the new unit has a much better visibility in all different lighting conditions satisfying specially supervisors when doing their day to day examinations with these units.

Conclusion:

Since the introduction of PCMS system at Ponders End, the Safety culture has been further re-enforced, with an increased level of efficiency. The users have found PCMS very user friendly and easy to learn. This has not been a culture shock to any individual as a result of moving into an electronic permit system. The responses obtained from all permit issuers and receivers have been very encouraging. Furthermore, there is a huge push from the users in moving towards the use of the PCMS system as the sole means of generating all permit to work at Ponders End. aSap would like to take this opportunity to thanks all individuals who have been involved and provided valuable time and effort.

Listed below are some of the main proven advantages in using PCMS system to date:

- Permit generation – ensuring the correct completion of all sections of the permit
- Time saving - Mainly in planning and preparation of permits.
- Assessments – ensuring that the assessments are completed and performed at source
- Increased efficiency – in the case of reoccurring tasks such as repetitive PM jobs, PCMS provides knowledge based of past-completed permits, which can be reused.
- Monitoring – Real time monitoring of the status of all permits within PCMS system (e.g. Plant manager, Mike Lewis can always view the status of all permits within the site from any location, using either a tabular or site layout format.
- Conflicts Management – notification of all potential conflicts between permits
- Audit trail – PCMS keeps an audit trail of all the changes made to a specific permit
- Reporting – PCMS reporting functionality provides a dynamic means of generating any type of reports (e.g. total number of permits issued in facility, per vessel for a given duration).
- Integration to other systems – PCMS is linked to MAXIMO system, which has reduced duplication of data entry between permit generation and MRO generation.

Next Stage:

As a result of the successful implementation of PCMS at Ponders End, aSap system has been recognised as a possible global solution for the management of permits across its manufacturing plants.
PCMS has the capabilities to be a multi-site application with multi-lingual and web-based architecture.
The system has been reviewed with other Safety managers and highlighted as one of Ponders End best practices within Merck.

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