LESS PAPERPUSHING, MORE ENGINEERING

Powerful, intuitively operated documentation tool proves its usefulness in practice — Documenting the actual as-built status of a large process plant is a Herculean task. It is not unusual for the change to the plant itself to take less time than the subsequent changes in the documentation. With myriads of copies and handwritten notes, important information is easily ge lost. For all these reasons, BASF in Ludwigshafen decided on the successive installation of an electronic documentation system – and the results speak for themselves…

M A R T I N   D U B O V Y *

Michael Brendelberger is Senior Engineering Manager, Site Engineering at BASF Ludwigshafen and was responsible for the implementation of the documentation tool: "In our plant engineering we have already been using Prodok—an I&C-CAE system for an integrated planning process with unified rules—for many years now. The documentation tool Livedok (Fig. 1) seemed to us to be the ideal complement. And we definitely made the right decision. Since introducing digital documentation in our plants, we always have up-to-the-minute, reliable as-built documentation which is accessible to everyone. In combination with the comfortable documentation tool we achieve synergy effects—and save both time and money. In short, a successful combination." However, in order to arrive at this point a tool not only has to be introduced—it also has to be accepted by the users. The changeover from paper to digital documentation can be a particularly challenging hurdle.

Decisive for Acceptance

Therefore one strong argument in favor of using the documentation tool was its intuitive operation, which made a big contribution to easing the change: in Ludwigshafen there was no need for several hundred users to be coached individually; they had a central training session. Practical experience has shown that this applies in other projects, too: generally after a maximum of one day's training, users can work reliably with the tool.

Two main groups use digital documentation: employees working on-site in the plant to carry out installation, maintenance and repair tasks, and their colleagues in document administration, who check entries for plausibility, among other criteria, and initiate revision processes. The requirements of these two groups regard-

* The author is Head of Plant Solutions at Rösberg Engineering, Contact: Phone +49-721-950180

Livedok has proved its worth in the digital documentation of complex industrial plants in the process industry.

ing documentation are totally different, and all of them are exemplarily met by this documentation tool. People working on-site in the plant get a straightforward, clearly-structured input mask. Alterations can be quickly made with a redlining palette with functions ranging from handwritten entries through text marking, to dynamic stamping and many more. For traceability, the date and time of the change, and the name of the employee who made it, are recorded automatically.

For documentation administration, on the other hand, a wide range of functionalities are available which support, for instance, the revision of documents and the planning of changes. Michael Bren-

delberger is convinced by this practical division: "At present we have approximately 1,500 Livedok users in Ludwigshafen. Despite its comprehensive functionality the tool is easy to use, and for this reason it was quickly accepted by our plant personnel".

Everything at a Glance

However, a good documentation system has to be capable of more than the digital recording of redlining markups. The tool in use in Ludwigshafen also enjoys wide acceptance because it depicts the whole documentation workflow, from data recording to revision. Before the digital solution was adopted, the revision process in

particular was very time-consuming and often involved many check backs, for instance because handwritten changes were not legible, or because information about the date of a change or the identity of the employee making it was missing. With the digital tool these processes are compulsorily required – meaning that the user is "forced" by the system to enter all the relevant information.

Brendelberger also regards this as an advantage: "We have realized that a great deal of time is being saved in the revision of the documents following redlining. Another advantage is that changes flow into the documentation very quickly, and in the plant we always have the up-to-the-minute docu-

mentation at our fingertips, wherever we are. Before introducing the documentation tool, there was often a substantial time-lag between redlining and the availability of a revised new version. Another plus point is that everyone can see the redlining entry before revision, so everyone is always informed about the current status." After redlining input documents are not barred from further processing, but can continue to be used as normal documentation until the next revision. For this situation the tool offers appropriate concepts which highlight and deal with any conflict in content that may occur.

Optimizing Processes

Revisions are no longer performed according to a rigid time framework, but depend on the scope and type of changes that have been made. Brendelberger explains: "We have now become more flexible in our approach and therefore more effective. We can vary the size of the data packages for revision as required. For internal processing, we keep the packages as small and as current as possible. For external contractors we intentionally collect the data packages and then send them off together. In this way we have cut down the resources needed to administer and change documentation and carry out our revision management".

Thus at the touch of a button, operational control can obtain an overview of all changes that have taken place in the plant. Since changes can be freely classified as wished, information items can also be deposited here and can trigger further processes. Brendelberger gives an example: "Another benefit is that we can print out all

Thanks to the App

FLEXIBLE DOCUMENTING ON-SITE

Plant documentation is made even easier by the "Livedok Mobile App" for mobile devices. Using this app, users can be sure that no information gets lost, because items can be directly entered on mobile end devices. Since no WLAN is available on-site inside most plants, data can be entered offline and added to the documentation as soon as access to the company network becomes available again. This functions very smoothly, thanks to a well-thought-out conflict management solution. In many cases it also makes sense to use the camera of the mobile device, as Brendelberger well knows: "Our employees can photograph what they see in a plant directly, and add the photo to the plant documentation. In this way important facts that require investigation can be documented without many words".

>> A smart operational concept for all users is decisive for acceptance.

changes in the plant at the touch of a button. This is a great help to us in preventive maintenance."

No Need for On-Site Work?

However, time savings are not limited to data recording revision. In many cases on-site inspections have become unnecessary, which is a decisive advantage in a plant the size of BASF's Ludwigshafen site. Brendelberger also appreciates the fact that the relevant documents can be found much faster: „Previously we used to have to search for the relevant paperwork among the paper documentation and we couldn't always be sure that it was really the current document that was filed. With the full text search, we can now locate the document we need within seconds. In case of faults we can quickly intervene and replace the defective component."

Every component built into a plant is designated as a "plant as-

set". For each asset, the complete documentation can be stored. Especially for parts that are subject to wear, such as sensors, valves, drives etc., the documentation software has great advantages for asset management, since a query suffices to ascertain which component is built into which part of the plant. If there are problems with specific components, or a manufacturer withdraws a certain part, the plant operator has an instant overview, and is in a better position to plan alternative strategies.

Keeping an Overview

When a new plant is built or extensive changes are made to existing sites, often many different trades are involved. In previous projects, a separate file containing the necessary contracts and paper documentation was drawn up for each trade. At the end of the week, these documents were returned to the project manager with remarks on the current status and any problems that had occurred when carrying out the work. It was virtually impossible to keep an overview in this situation. Today, the documentation tool is used for this area, too. Interaction between the individual trades also functions more effectively, because any redlining entries by a worker engaged on the project are immediately visible to everyone concerned.

Source: Rösberg

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MICHAEL BRENDELBERGER
BASF