



Sharing Data with Your EH&S Management Information System

Technology is supposed to make our lives less complicated, right? EH&S professionals may disagree. It seems that computers and data management systems have confounded us, and we are working more hours than ever. Except we no longer slave solely on EH&S issues, we now also wrestle with the IT department about the system that was designed to make our lives easier. Ask yourself, "How can I harness technology to simplify my daily routine?" The answer may be in linking your various plant software applications to your environmental management information system (EMIS) for streamlined data capture, entry, and management.

THE CHALLENGE

EH&S data come from almost all facets of operations and reside in hundreds of places, from paper forms, to purchasing systems, to spreadsheets and word processors. Many companies use multimedia EMISs, but the system alone typically does not contain all the data needed to effectively manage EH&S processes. Many EMISs, however, can be linked to existing plant systems. The challenge is determining what can and should be linked, and which solutions offer the greatest benefit to the organization.

To decide whether sharing data is right for your business, you must first assess your EH&S needs and decide what

information is most valuable to your EH&S processes. You may decide to link to your company's financial system to view or use information about raw material orders, or to the manufacturing system for information about daily material used. Some companies link to the human resources systems to relate basic employee information with job functions for Occupational Health and Safety Administration (OSHA) and training purposes. You may choose to link to a plant historian or process control system to capture operations data for process values, or perhaps a Material Safety Data Sheets (MSDS) system to share chemical properties. The best plan for your company may be to link all of your plant systems to your EMIS, or conversely, you may not need to integrate at all.

INTEGRATION STRATEGY

Although systems integration sounds intimidating, it can be less frightening if you approach it like any other large project. First and foremost, devise a strategy. Decide which systems house information that would be useful if linked to the EMIS. Is there a business or regulatory driver that clearly points to the need to integrate multiple applications or databases?

The link between plant systems and an EMIS can be either a one- or two-way transfer. A one-way transfer exports data from the plant system to the EMIS. A two-way transfer between the management system and the plant systems creates a closed-loop system, which allows the company to use real-time EH&S data to make decisions on the manufacturing side. For example, a company operating under its permitted emission limits may choose to modify its manufacturing process to be more cost-effective while using all available emission limits.

BENEFITS OF LINKING

There are many advantages to linking plant systems to your EMIS. Some of the most important include

- **Reduced errors/improved accuracy** — A highly integrated system will use information that already exists in other systems, which reduces the need for manual data entry. Data is transferred electronically, rather than manually, thus reducing human error.
- **Better management of EH&S processes** — While a software product cannot guarantee compliance with the multitude of regulatory requirements, automating EH&S information systems will allow your company to view trends, perform ad hoc data searches, and have data readily available during agency inspections. In addition to archiving data into a repository, a fully integrated system will allow the company to better manage EH&S processes. For example, performing annual compliance certifications for a Title V operating permit can be streamlined.
- **Optimized resources** — An integrated system reduces operator resource needs because operators enter data in one system instead of multiple systems. A client/server or Web-enabled system allows distributed and secure access to all or a predetermined set of information in the system with minimum effort, making response to compliance issues quicker and easier.
- **Standardization and consistency** — One of the greatest advantages of a highly integrated EMIS is the consistency the system provides between calculations, analytical methods, compliance reports, and compliance practices. Consistency also facilitates communication with the regulatory agencies, internal auditing of procedure/compliance, and unit-to-unit and site-to-site performance tracking. In addition, such a system can allow roll-up reporting across multiple sites. A highly integrated system can improve the consistency of processes and accounting or purchasing data related to environmental processes.
- **Increased operating profit** — Finally, the aforementioned benefits demonstrate how enhanced management of EH&S processes and integrating systems lead to improved performance, which, in turn, increases the “bottom line.”

LINKING

The benefits are impressive, but how does it work? Linking plant systems to an EMIS can prove to be a complex process. Because the EMIS industry is fragmented, there are many kinds of management systems out there designed to house different kinds of information. For example, there are various MSDS systems available and, therefore, various methods to extract data from specific systems. The same holds true for financial systems, process historians, fugitive emissions databases, etc. A common method used to interface with existing systems is to leverage Application Programming Interfaces (APIs), which are available for many plant systems. With these interfaces, one can extract applicable or needed data. Once the customized extraction is in place, your systems can easily be integrated with an EMIS.

Using a technology called eXtensible Markup Language (XML), IT professionals can transfer specific information from plant systems to the larger EMIS where it can be used to generate reports or be viewed by an end user. XML is a “firewall-friendly” technology, meaning that although data is protected from outsiders, it can still be seamlessly transferred through firewalls to your EMIS.

THE DECISION

Consider the following questions when deciding whether to integrate your plant systems with an EMIS:

- With which systems should the management system be integrated or interfaced?
- What is the user community and their specific needs?
- What are the organization’s technical requirements (i.e., hardware, software)?
- What is driving the organization to consider integration?

Using the answers to these questions, devise a plan of attack. Discern which plant systems offer data that are critical to report generation and compliance, and link those systems to your EMIS. Be sure that the technology used to integrate your systems will stand the test of time, and that data entry screens are easy to use. Although the idea of integrating EH&S systems is complex and may seem intimidating, the benefits are often quantifiable and the results positive. Linking plant systems could be the solution you’ve been looking for, and you may finally be able to say that technology is making your life less complicated. ☺

About the Author

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