

Effective Communication in Environmental Management

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Communication is the glue that holds together the elements of an environmental management system. This article offers some practical tips on how to ensure that your environmental communication system is doing the job you want it to. © 2001 John Wiley & Sons, Inc.

Environmental management systems (EMSs) are becoming more common in manufacturing companies. New market drivers, such as major automobile makers requiring their suppliers to implement EMSs, have in many cases made such systems a requirement of doing business.

EMSs can vary considerably from one organization to the next, and even within different parts of a single organization. Common EMS system standards, such as ISO 14000 or EMAS, in fact, were designed to be flexible enough to be applied to any type of organization, regardless of size, complexity, or type of operation.

Even so, EMSs generally consist of several key elements, such as:

- a written policy statement
- planning
- implementation and operations
- measurement and corrective action
- auditing/review systems

Each of these major elements may then have several sub-elements and other specific requirements.

Although implementation of a formal EMS may be a new initiative, most com-

panies typically have some type of informal system in place that has evolved over time to meet different specific needs. Therefore, a common first step in developing a formal EMS is to conduct a “gap analysis” to determine what elements may already be in place and which need to be created or revised. In addition, even if many of the required elements have already been implemented, the company may face a challenge tying these separate elements together into a single system.

Communication systems are often necessary to fill the gaps in an informal system. Communication is typically a required (although minor) element of an EMS. Based on the amount of language given to this element in written EMS standards, it may seem to be less important than most others. However, communication systems are the “glue” that hold together the various EMS system elements, and it is therefore crucial that these systems be given a significant amount of attention to ensure the success of the entire EMS.

This article focuses on the role of communication as a separate element of an EMS system, and as a continuous thread that touches and connects all the

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other elements. I propose a logical method for examining communication requirements with respect to other EMS system elements, and designing appropriate systems to ensure that those requirements are met.

To begin, three key components of environmental communication systems are discussed:

- communication pathways,
- communication content, and
- communication tools.

ENVIRONMENTAL COMMUNICATION PATHWAYS

Environmental communication can take many forms within an organization. Types of environmental communication can be defined as they relate to the corporate organization. A typical manufacturing corporation may consist of a corporate management and administrative structure, made up of manufacturing divisions or groups, each of which contains one or more manufacturing facilities, which in turn are broken down into departments.

Vertical environmental communication, then, would consist of communication among the corporate, divisional, facility, and department levels, in both directions. The communication may exist along many different “tracks,” such as environmental representatives at each level, engineers at each level, or other groups. Vertical communication also may exist within any level itself—such as a plant, with communication taking place among plant management, plant technical staff, and production workers.

Horizontal communication involves communication among departments within a plant, among plants within a division, or among divisions within a corporate structure.

Defining environmental communication in this manner may appear to be an oversimplification of how things really

work. However, if the possibilities for communication across the many vertical and horizontal boundaries are considered, it becomes clear that a vast diversity of types of communication is possible.

In addition to internal communication within a manufacturing company, it is also necessary to consider communication with external parties. In fact, this type of environmental communication appears to have been studied more than internal communication, with respect to such areas such as risk communication, public relations, and community involvement. While this article considers external communication, the focus is on internal communication within a corporation.

ENVIRONMENTAL COMMUNICATION CONTENT

The content of environmental information communicated can be as varied as the communication pathways described above. A basic type of information is a set of requirements for compliance with environmental regulations or corporate guidance. Generally, it is the role of the corporate or divisional representatives to communicate these requirements to manufacturing facilities, although this responsibility can move in the other direction, particularly with respect to local requirements.

Information on how to comply with requirements can be communicated as well. This may be particularly useful if the information being communicated involves new or pending regulations, or anticipated effects of regulatory changes. Such “how to” communication can help in the planning process for the entire facility, with respect to production, staffing, budgeting, and even scheduling of production and other operations.

Another type of information content is facility performance. This type of information is generally communicated vertically, up through the corporation, to

the corporate level, where it can be summarized and presented to management. This information includes such things as numbers of violations and exceedances, outstanding audit action items, progress in achieving pollution prevention goals, steps taken to implement programs and systems, and environmental costs.

A related form of communication involves the types of data that plants are required to collect and report. Such information must first be communicated vertically downward from the corporate level.

Communication regarding potential environmental hazards or actual incidents can help other facilities avoid potentially risky situations. Sharing success stories on how a facility completed a project or addressed a potential concern can save other facilities significant time and expense as well.

Even something as simple as a standard format for a spill plan or training program is often well worth the effort of communicating throughout the organization. This is an example of a type of information content that would be communicated horizontally from plant to plant.

ENVIRONMENTAL COMMUNICATION TOOLS

Many tools exist for communicating environmental information, from the simple meeting or phone call to technologically advanced videoconferences and Internet discussion sites. Many companies make use of a wide range of different tools, though their choices often are based largely on past practices and convenience. With some planning, the most effective and efficient use of the various tools can be ensured.

Face-to-face meetings are in many instances the most valuable tool. Obviously, however, they are not always possible due to time and cost constraints. Creating a regular schedule of plant vis-

its for audits or other purposes can help ensure that at least a minimum level of personal communication is maintained.

Another option used by many companies is regular meetings or conferences of environmental personnel from facilities, divisions, and corporate groups. This type of communication has the advantage of enhancing horizontal communication between facilities, divisions, and/or corporate staff who may not communicate on a regular basis. Great opportunities exist for creating and enhancing communication lines between personnel during these events, often as a result of informal and impromptu relationships that develop.

Telephone conversations are another communications tool that has been around for many years. Although not as personal as meeting face-to-face, verbal conversations have a much greater potential for a real exchange of information, ideas, and attitudes that may not be possible in memos or e-mails. Some environmental groups make it standard practice to hold regular conference calls with groups of plants to keep everyone up to date. Also, just calling each plant monthly or weekly can help keep the flow of information going in both directions, even if there is seemingly nothing significant to report or discuss.

New technologies have enhanced the effectiveness of telephone conversations. Videoconferences, although not yet common everywhere, offer all the advantages of telephone calls, plus the benefit of allowing participants to observe facial expressions and body language. It is also possible for parties to view documents via the same video technology.

Computers and the Internet have opened up entirely new forms of communication, some of which are enhancements of older technology. "Net-meetings" allow users at different locations to view and even modify documents at the same time. Video equip-

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ment allows these Net meetings to become enhanced (and relatively inexpensive) videoconferences.

E-mail allows instantaneous communication and, unlike telephones and voice mail, promotes a more effective exchange of information in some cases. When one of the parties is tied up on a telephone call or in a meeting, e-mail will wait for a response. E-mail also provides a written record and allows messages to be easily distributed to many parties simultaneously, a skill also available but not commonly used with voice mail. Other technology is now allowing the merging of voice mail, e-mail, and faxes, although widespread combined application of these techniques has not yet occurred.

Advances in new types of hardware, such as PDAs and cell phones, is also merging communication tools such as voice mail and e-mail. These devices, along with portable computers, allow for communication to continue uninterrupted when one or more parties involved are traveling.

The Internet and company intranets are also being used widely to communicate environmental information. Government regulations, company environmental data, document templates, and other types of information commonly can be obtained over these networks, both internally and externally. The advantage is that the information is easily distributed and easily updated. Users of the system are therefore assured of having easy access to the most recent version of documents.

The wide range of tools available should be evaluated to determine which are the most effective and efficient for each type of communication necessary. Preferred methods should be decided upon for each type of communication. It is likely that there is room for all types of communication tools in every organization, depending on the specific applica-

tion and goals of the communication. With the constant advances in communications options, the preferred methods should be re-evaluated on a regular basis, and modified if necessary.

DESIGNING AND IMPLEMENTING EFFECTIVE ENVIRONMENTAL COMMUNICATION SYSTEMS: SOME EXAMPLES

Designing and implementing an effective environmental communication system can seem overwhelming, given the numerous combinations of communication pathways, informational content, and tools discussed above. As with other elements of an EMS, it is best to start by defining communication needs and prioritizing them with respect to the management system as a whole.

It is also important to inventory all of the communication tools that are available to the organization or that are likely to be obtained if determined to be a high priority. From there, a plan can be developed for implementing the most effective communication systems for each particular application.

Environmental Policy Statement

For example, a key component to developing an EMS is an environmental policy statement for the entire organization. This is typically prepared as an initial step in implementing an EMS, since additional policies, procedures, and work instructions are based on and conform to this initial policy. The policy must be widely communicated, even externally. Also, this type of document is typically relatively brief and is not revised frequently, in comparison to lower level documents. For these reasons, widespread distribution of paper copies may be sufficient. Annual financial reports or even environmental reports typically include a copy of the organization's environmental policy.

An organization with an intranet or other network that is available to all or

most locations may decide to make its environmental policy statement available electronically. This makes updating more efficient and gives facilities assurance that they have access to the most updated version. Companies with Web sites also often include environmental policies and even more detailed information, such as environmental reports and annual performance data.

Spill Reporting

A totally different example might involve something like spill reporting. In this case the emphasis would be on quick communication to a very specific audience. Spill and release reporting regulations typically have short reporting periods, usually 24 hours or less.

Communication in this case would require immediate contact using radios, telephones, cell phones, and pagers, both within the facility and to notify internal and external contacts. A brief one-page spill report might be e-mailed or faxed to other company locations or regulatory agencies.

Because of regulatory and corporate requirements, reaching a very specific audience is crucial. This need brings up a related but very different communication requirement: release response planning, including emergency contacts, which must be communicated before an emergency occurs, to ensure that the emergency communication system can work.

MAPPING AN ENVIRONMENTAL COMMUNICATIONS SYSTEM USING A MATRIX APPROACH

Many EMSs are informal and have evolved slowly over the years. The environmental communication portion usually has also developed over time, with different elements being implemented as new issues arise. For this reason, EMS communications systems are often disjointed and inefficient because they were

implemented in a piecemeal fashion over time, without a strategic plan or comprehensive analysis of needs.

Deficiencies in informal EMSs may include problems such as lack of knowledge at the corporate level of plants' performance and compliance status, and ignorance or misunderstanding of regulatory and corporate requirements by the plants. It is also typical for many parts of the company to lack an understanding of the importance of environmental issues and how they can potentially impact the bottom line.

All of these deficiencies are really communication problems. These types of deficiencies often result in a company being in constant "fire fighting" mode, thereby wasting resources on the same issues repeatedly, instead of moving ahead on a path of continuous improvement.

Implementation of a formal EMS system that conforms to a standard such as ISO 14000 offers an opportunity to review the overall communication needs of the EMS. Communication systems can be evaluated to ensure that they fit in with other system elements, and also enhance those elements and the system as a whole.

Even without designing and implementing an entirely new EMS, it is helpful to review environmental communication needs to maximize the effectiveness of the existing system. In fact, this review may be the single most important element in "jump starting" an informal system and moving it along towards becoming a formal system.

Conducting a comprehensive review of an EMS communication system is most efficient and effective when completed in an objective, analytical manner, similar to other types of gap analyses. A matrix approach can be used to delineate what needs to be communicated, to whom it needs to be communicated, and how the communication should take place.

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Communication pathways are mapped by indicating the parties involved in the communication and the direction of the contact.

Mapping Environmental Communication Pathways and Content

The first step is to inventory the existing or desired components of the first two communication aspects discussed above—communication pathways and communication content. **Exhibit 1** presents an inventory of communication pathways, using the reporting of spills as an example.

On this exhibit, all parties potentially involved in the communication are listed at the left-hand side and the top of the table. Then communication pathways are mapped by indicating the parties involved in the communication and the direction of the contact. In this example, the following steps would occur in reporting a spill, from initial discovery to negotiation of a resulting penalty:

1. Discoverer of spill notifies Plant Environmental Coordinator
2. Plant Environmental Coordinator notifies Plant Manager
3. Plant Environmental Coordinator notifies Corporate Environmental Engineer
4. Plant Manager makes required spill notification to the appropriate environmental agencies
5. Corporate Environmental Engineer notifies Corporate Environmental Manager
6. Corporate Environmental Manager notifies VP of Environment
7. Environmental Agency notifies Plant Manager of potential violation/penalty
8. Plant Manager notifies Corporate Environmental Manager of potential violation/penalty
9. Corporate Environmental Manager notifies Corporate Environmental Attorney of potential penalty/violation
10. Corporate Environmental Attorney negotiates a resolution of the potential violation/penalty with the environmental agency.

Documenting Preferred Environmental Communication Tools

After mapping out the communication pathways and content, the next step is to determine how the preferred tools can be used to ensure the most effective communication. **Exhibit 2** lists the communication pathways identified in Exhibit 1 on the left-hand side, and available communication tools at the top. Determining and documenting the preferred methods of communication is then simply a matter of filling in the appropriate spaces in the table. Using numbers to indicate the order of preference for the communication tool allows flexibility to adapt to different situations.

For example, the first pathway involves the person who discovers the spill notifying the plant environmental coordinator. If that person is able to get in touch with the coordinator personally, they could simply report the spill verbally. Alternatively, in a large plant, the use of a telephone or pager might be necessary to reach the coordinator. The scenario would likely be the same for the coordinator informing the plant manager of the spill.

However, for the coordinator to notify the corporate environmental engineer at a distant location, personal communication is obviously not logical. A telephone call or, if necessary, an e-mail or fax, could also be used to inform the environmental engineer in a timely fashion. In addition, even though telephone may be the preferred method for initial notification, corporate policy might require the coordinator to complete a standard spill report form and e-mail or fax it to corporate headquarters for review, distribution, and tracking. Similarly, a verbal report is typically required by the environmental agency, with a follow-up written report to document additional details.

While the parties involved, communication pathways, and preferred tools

Exhibit 1. Inventory of Communication Pathways: Spill Reporting Example

| | | COMMUNICATION TO: | | | | | | | |
|----------------------------------|--|--------------------------|---------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|-------------------|--|
| | | Spill Discoverer | Plant Environmental Coordinator | Plant Manager | Corporate Environmental Engineer | Corporate Environmental Manager | Corporate Environmental Attorney | VP of Environment | Environmental Agency |
| COMMUNICATION FROM: | | | | | | | | | |
| Spill Discoverer | | | (1) Initial report of spill | | | | | | |
| Plant Environmental Coordinator | | | | (2) Spill report | (3) Spill report | | | | |
| Plant Manager | | | | | | (8) Notice of violation/ penalty | | | (4) Required Spill Notification |
| Corporate Environmental Engineer | | | | | | (5) Spill report | | | |
| Corporate Environmental Manager | | | | | | | (9) Notice of violation/ penalty | (6) Spill report | |
| Corporate Environmental Attorney | | | | | | | | | (10) Negotiate/ resolve violation/ penalty |
| VP of Environment | | | | | | | | | |
| Environmental Agency | | | | (7) Notice of violation/ penalty | | | | | |

Exhibit 2. Communication Tools: Spill Reporting Example

| COMMUNICATION PATHWAY: | COMMUNICATION TOOL: | | | | |
|--|---------------------|--------------|--------|----------------|-----------------------------|
| | Verbal | Phone/ Pager | E-mail | Paper Memo/Fax | Paper Memo/Mail or Delivery |
| (1) Spill Discoverer → Plant Environmental Coordinator | 1 | 2 | | | |
| (2) Plant Environmental Coordinator → Plant Manager | 1 | 2 | | | |
| (3) Plant Environmental Coordinator → Corporate Environmental Engineer | | 1 | 2 | 3 | |
| (4) Plant Manager → Environmental Agency | | 1 | | | 2 |
| (5) Corporate Environmental Engineer → Corporate Environmental Manager | 1 | 2 | 3 | | |
| (6) Corporate Environmental Manager → VP of Environment | | | 1 | | 2 |
| (7) Environmental Agency → Plant Manager | | | | | 1* |
| (8) Plant Manager → Corporate Environmental Manager | | | | 1 | 2 |
| (9) Corporate Environmental Manager → Corporate Environmental Attorney | | | | | 1 |
| (10) Corporate Environmental Attorney → Environmental Agency | 1 | 2 | | | |

1 - primary tool
 2, 3 - secondary, etc., tool
 * - Obviously, the communication tool to be used by the agency is not under the company's control, but can be anticipated based on past practice.

for each incident may vary, the example above shows that mapping the preferred actions ahead of time will help ensure that everyone who needs to know is informed. It also clarifies the roles of the different parties, such as who actually is responsible for initial reporting to the environmental regulatory agency and who is responsible for negotiating any resulting penalties.

Although conducting such a detailed evaluation for one specific type of communication may seem tedious, once the procedure is set up, all the guesswork is taken out of the process; the steps to take in case of an emergency are determined in advance, so no one needs to waste time figuring them out. The use of such a table can simplify the initial planning process as well as help in implementing the system when it is needed. Conducting periodic reviews of the system as part of the EMS self-audit cycle is also simplified.

Combining Environmental Communication Maps

This process of defining communication systems can be streamlined further

by combining the two maps into a single table. **Exhibit 3** shows this, using the example of evaluating and approving waste disposal/treatment vendors, a process conducted by many manufacturing companies to manage the impacts of the environmental aspect of shipping waste off site.

As shown in Exhibit 3, the process is initiated by the corporate environmental engineer, who requests information on waste vendors from the plants. This is to be accomplished by e-mail or by paper memo if necessary. Next, the plant environmental coordinator responds using the same method. The corporate environmental engineer then contacts a consultant, and sends a request for proposal, via fax or paper memo. The consultant then visits the waste vendor in order to complete an audit of their facility, by necessity a face-to-face visit. The consultant then reports the results of the audit to the corporate environmental engineer via a paper report or a fax of selected portions, such as the executive summary.

The information is then relayed to the corporate environmental manager in

Exhibit 3. Communication System Mapping: Waste Vendor Management Example

| | COMMUNICATION TO: | | | | | | | |
|----------------------------------|---|---|--------------------------------------|--|---|---|---|---------------------------------------|
| | Plant Environmental Coordinator | Plant Manager | Corporate Environmental Engineer | Corporate Environmental Manager | Corporate Environmental Attorney | VP of Environment | Waste Vendor | Consultant |
| COMMUNICATION FROM: | | | | | | | | |
| Plant Environmental Coordinator | | | (2) Vendor Info [e-mail/paper] | | | | (9) Waste Service Request [phone/paper/fax] | |
| Plant Manager | | | | | | | | |
| Corporate Environmental Engineer | (1) Vendor Info Request [e-mail, paper] | | | (6) Approved Vendor List [meeting/paper] | | | | (3) Vendor Audit Requests [fax/paper] |
| Corporate Environmental Manager | (8) Approved Vendor List [intranet/paper] | (8) Approved Vendor List [intranet/paper] | | | (7) Approved Vendor List [paper/e-mail] | (7) Approved Vendor List [paper/e-mail] | | |
| Corporate Environmental Attorney | | | | | | | | |
| VP of Environment | | | | | | | | |
| Waste Vendor | | | | | | | | |
| Consultant | | | (5) Vendor Audit Reports [paper/fax] | | | | (4) Audit Vendor [meeting] | |

a meeting, with a copy of the report being transferred. After reviewing all of the vendor audit reports, a summary is forwarded to the VP of environment and to the corporate environmental attorney in the form of a paper memo or perhaps an e-mail with attachment.

The list of approved vendors is then posted on the company intranet, so the plant environmental coordinator and plant manager can review it and select approved vendors to handle the waste from the plant. Posting on the intranet allows everyone with access to view the list, without having to send out paper copies. It also allows for easier updating as additional vendor evaluations are completed, and vendors are added and removed from the list. This also allows plant personnel to always have access to the most current list of approved vendors.

The final step in the communication process is for the plant environmental coordinator to contact the waste vendor, typically by telephone, with follow-up

by paper or fax, since a written, signed contract is necessary.

Mapping and following all the steps in the communication process helps ensure an orderly flow of information and notification of all persons who need to be informed, in the required order. It also sets up the preferred or required methods of communication.

CONCLUSION

Although not typically thought of as a major element of an environmental management system, communication is a crucial component that should not be overlooked. Communication is the necessary link between all the other elements, and it ensures that the system functions as intended.

A simple matrix approach can be used to map individual communication requirements in a logical, structured manner. This helps ensure that the communication system is set up properly. The matrix is also easy to understand, review, and modify.

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