

Section 2: Getting My Facility Ready to Implement an EMS

In previous sections, we've reviewed the benefits you can expect from your EMS, briefly described the 17 key elements in the EMS, and graphed and explained the five phases of EMS implementation. You're probably eager to plunge directly into building your EMS, but before you do, it's critical that you prepare your organization for the task—what's been called the warm-up and soak-in period. The Getting Ready Phase should take your organization about three months, and its importance cannot be overstated.

What this Section Will Cover:

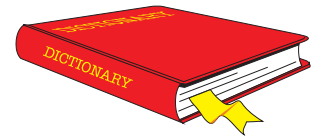
- ⇒ Choosing Your EMS “Fenceline”
- ⇒ Understanding Your Organizational Goals
- ⇒ Top Management Commitment, Involvement, and Visibility
- ⇒ EMS Program Leadership
- ⇒ Securing and Maintaining Employee Buy-in
- ⇒ Conducting an EMS Gap Analysis or Preliminary Review
- ⇒ Managing Change
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Choosing Your EMS Fenceline

When you decide to implement an EMS, one of the first decisions will be where it will apply. Where you apply your EMS is commonly referred to as the EMS “fenceline.” An EMS can be applied to any operation or activity, to an entire division or within one department.

Experience from public organizations has shown that starting small is the way to go. Select one operation or department as a pilot, gaining confidence and experience as you build your EMS. Consider starting with a smaller or more manageable operation, then expanding and transferring the lessons learned and knowledge to other departments. Personnel in the original fencelines can then be EMS mentors, trainers or champions as new areas of the organization are added. Five out of six of our wastewater practitioners used an incremental approach for EMS implementation, choosing a manageable pilot operation or division first. These EMSs were then expanded out to include other departments and/or divisions.

Key Section Terms



Environmental Management System (EMS) – A system for identifying environmental and organizational issues and implementing organizational improvements based on Deming's Plan-Do-Check-Act model. The EMS has 17 elements that help organizations achieve environmental policy commitments and environmental performance improvements.

Environmental Management Representative (EMR) – The clearly-identified EMS team leader who has the responsibility and management authority for implementing the EMS from start to finish.

EMS Core Team – A cross-functional team made up of individuals within the organization that help to facilitate EMS implementation across the organization. These are the EMS experts and cheerleaders.

EMS Implementation Team – Individuals within the organization who are closest to the actual workflow and who assist the Core Team and the EMR in better understanding operational activities. Implementation Teams are generally very involved in designing operational controls, testing emergency preparedness and response plans, and identifying the environmental aspects of their daily activities.

EMS Fenceline – Operational area or areas within an organization where the EMS is implemented.

Gap Analysis – Preliminary assessment of an organization's environmental programs and management practices to see where they match up with EMS requirements.

Top Management – Person or group with executive responsibility for the organization and the EMS.

Questions to Consider When Selecting Your Fenceline:

- 1) Which of our operations has the most environmental hot-spots? Which operations give us more headaches?
- 2) Where do we use the most natural resources? Energy? Hazardous materials?
- 3) Which operations offer the most transferability and replication to other wastewater operations?
- 4) Which of our operations has the most receptive management? Line Supervisors? Employees?
- 5) Which of our operations are NOT in the middle of a capitol improvement project or being restructured or reorganized?

Here are some examples of EMS fencelines in wastewater organizations across the United States:

Wastewater Organization	Fenceline
Buncombe County, North Carolina Metropolitan Sewer District	Wastewater Treatment Plant; Operations Department; Electrical Maintenance; Structural Maintenance; Mechanical Maintenance; and WWTP Administration
Charleston, South Carolina Commissioners of Public Works	Water Distribution Department Wastewater Collection Department
Eugene, Oregon Public Works	All Wastewater Operations
Gastonia, North Carolina Public Works	Wastewater Treatment Division: 2 WWTPs; a laboratory; pretreatment; biosolids; and a resource recovery farm
Kent County, Delaware Public Works	Wastewater Collections, Wastewater Treatment, and Biosolids Treatment
San Diego, California Metropolitan Sewer District	Operations & Maintenance Division (pilot); Wastewater Collection Division; Water Operations Divisions (3 of the 6 Divisions within San Diego's MWWDD)

Once top management has confirmed the fenceline selection, it's time to pay a visit to the managers and supervisors in the fenceline divisions. You'll certainly want to include all types of employees (i.e., union stewards, contractors, temporary staff) in your discussions right from the start. You'll want to think about how best to prepare them all for the EMS implementation experience. It's a fact that the time you invest now in promoting awareness, understanding, receiving buy-in, especially among managers and supervisors, will be time saved later in the process.

One point repeated by wastewater facilities that have implemented EMSs is to spend extra time with managers and supervisors. One-on-one conversations can identify their needs, concerns, and problem areas. The more middle managers involved in the initial stages of the EMS, the more support and buy-in you will get. An EMS involves all employees in the fenceline at appropriate points in the implementation process, including support services like H.R.—so get out there and start the discussions!

There are a number of keys to success for getting buy-in at the fenceline areas that are worth noting, including:

- Invite the fenceline staff to a short EMS awareness meeting. Senior management should be highly visible and involved in making the case for EMS and endorsing it as a priority. It needs to be perfectly clear to everyone that the EMS is a management commitment.

(Note: An EMS presentations from a wastewater organization is included in Appendix B).

- Drop by for brief informal discussions with supervisors, and managers and union stewards. Ask them what is going really well in their operation. Ask them where there might be some opportunities for improvement. It's probable that the EMS can facilitate some of the improvements in later implementation activities.
- Hang EMS posters and other informal awareness information on bulletin boards and in lunch rooms. One example of an interactive, fun tool, produced by MGMT Alliance, Inc., is available at <http://www.mgmt14k.com/014kpizza.htm>.

We'll be talking more about employee buy-in in later sections of the Handbook.

Understanding Your Organizational Goals

It's clear that implementing an EMS can lead to better environmental performance in your fenceline areas, as well as other important business benefits. Here are some of the organizational goals described by wastewater facilities we've talked to:

- Improve documentation and communications
- Develop and/or update standard operating procedures for field activities
- Improve morale and teamwork
- Increase efficiency of operations
- Reduce energy consumption
- Enhance the public image of the City or Agency
- Develop a process that would put us into a proactive role with regard to compliance instead of reactive
- Become more competitive
- Become "best in class" for wastewater

While there are some remarkable similarities among wastewater facilities, no two are exactly alike. An important first step in EMS readiness is understanding why your organization is implementing an EMS. Are you concerned about environmental performance? Do you want to improve your public image? Are you planning for succession issues as portions of your staff retire and new personnel must be trained and ready? Do you want better communication across your organization? Are you interested in green purchasing and product substitution options? Are you having problems meeting the expectations of the public?

Top managers should attend training sessions on EMS implementation. A facility EMS Steering Committee was formed with top management involvement. This committee was instrumental in developing and approving the EMS Policy and EMS level-one procedures.

Rick Bickerstaff
Charleston, South Carolina
Commissioners of Public Works

Senior management, as represented by the Public Works Director, has been directly involved with the EMS process by participating on the Core Team in the development of the EMS. In addition, he has kept the County Commissioners and the Sewer Advisory Board informed of the EMS progress with periodic briefings. He has attended EMS workshops and training and has reviewed all EMS documents, as they have been prepared and has talked to plant employees about the EMS.

Jim Newton, P.E., DEE
Kent County, Delaware
Levy Court Public Works

Division management directed that an ISO-14001 EMS be established and provided the economic resources to obtain necessary consultant support. Management created an environmental management representative position within the division and made the position comparable to other senior staff positions. Management heads up the EMS Steering Committee which meets on a regular (quarterly) basis and directs the production of a monthly division-wide activity report which highlights EMS activities. Management tracked the progress of EMS development on a continual basis over a two-year period until the EMS became registered.

Chris Toth
City of San Diego
Wastewater Collection Division

NOTE



Write your goals down and refer back to them frequently as you move forward.

REMEMBER



The goals of management and the frontline employees may be different, and therefore, the way you obtain support and buy-in from management and employees may be different.

The General Manager introduced the concept of the EMS at a MSD board meeting. From there, the General Manager held organizational team meetings to discuss the goals of the organization (EMS was one of the goals discussed). During these meetings, the General Manager, along with the EMR, introduced the EMS and how it will merge into the business plan of the organization. The General Manager also approved a Steering Committee which consists of top management. Each member of the Steering Committee meets with their staff on a regular basis and reviews the concept and focus of the EMS.

James Naber
Buncombe County, North Carolina
Metropolitan Sewer District

It's extremely useful and informative to spend some time with various levels of staff and functions in your organization, particularly in your fenceline divisions, discussing what improvements each would like to realize in its respective areas of responsibility. The responses you get from senior management will be considerably different than those from the frontline folks, but all are important. Keep track of these organizational goals. Document them, and refer to them often as you build your EMS. Frequently ask yourself whether your EMS plans include activities that will help you reach your goals.

You'll secure enthusiasm and buy-in at all levels in your fenceline areas as employees across your organization see that the EMS is accomplishing improvements they have suggested. You'll also encourage employees to communicate fresh ideas about how your operations might continue to be improved.

Here are some examples of goals that managers from wastewater facilities considered important:

- ◆ Establish your organization as a leader within the wastewater sector
- ◆ Instill a proactive instead of reactive culture
- ◆ Improve communications internally and externally
- ◆ Enhance public image
- ◆ Capture and document institutional knowledge

Here are some examples of goals that frontline employees from wastewater facilities considered important:

- Enhance the environmental impact of operations by doing something good for the environment in everyday work
- Improve communication between divisions and across functions
- Increase the use of best practices—performing activities better than industry standards
- Ensure that the organization is doing the right thing (i.e., complying with the law, etc.)
- Standardize procedures so that everyone is consistent and working together

As we've discussed in a previous section, the EMS integrates well with, and is also an excellent delivery vehicle for, other voluntary and required systems (e.g, Asset Management, CMOM, ISO 9000, Balanced Scorecard, QualServe, NBP, etc.) that your organization already endorses, so if your organization intends to adopt one or more of them, be sure to include that in your organizational goals as well.

Management Commitment, Involvement, and Visibility

One of the most important steps in the planning process is to gain top management's commitment and support to EMS development and implementation. It is critical that EMS commitment and support comes from both local (municipal) leadership and your organization's top management. In fact, experience has shown that public organizations who attempt to implement an EMS without top management support are unsuccessful.

Don't assume that top managers know all they need to know about an EMS. Just like the rest of your employees, senior managers need training. Short, frequent sessions that address managers' concerns and goals have been the most successful ways to keep management up to date on your EMS.

If your city managers or your wastewater management do not understand the potential benefits of an EMS, they probably will not have the incentive to follow through with implementation. During your preliminary discussions about the EMS, you'll want them to clarify management's specific goals for the EMS at your facility. You'll want to confirm that they understand the EMS implementation strategy and schedule you are using, the estimated direct labor commitment involved, and when, how, and what to communicate to employees on a regular basis. Every organization implementing an EMS has come to the same conclusion about management—**visibility, commitment, and involvement** are the **#1 keys to success**. Be sure your EMS plans include regular and frequent dialogue with management.

NOTE



On the political side, top management could include: the mayor, city manager, town board, city council or city commissioners. Top management on the facility side could include the division director, department head, or frontline managers.

Employees will react to management's actions far more than their words, so be sure that management understands their role in EMS development and implementation and that it involves being visible and involved, particularly in the beginning stages. Here's what wastewater facilities reported as management's most important roles and responsibilities:


- Providing input and approving the environmental policy statement
- Appointing the EMS Management Representative
- Approving EMS plans and programs
- Tracking EMS performance
- Being visible and involved in the EMS (e.g., showing up at team meetings and employee presentations)
- Communicating support of the EMS across the organization
- Regularly meeting with the Environmental Management Representative

CASE STUDY

Top Management from the City of Lowell, Massachusetts showed its support for EMS implementation by providing a financial incentive to employees within the wastewater facility when they successfully completed their EMS.

Initial commitment was by the Assistant Superintendent of Wastewater Treatment and the Director of Public Works and Utilities. They saw the potential benefits to the organization and asked staff to investigate the program and then to begin development and implementation. Support also came through approval of the time for staff to develop and implement the program and then by the City Council through approval of the policy. The City Council and City Manager approve the EMS policy each year if the Management Review Board determines that a change is needed.

Beth Eckert
Gastonia, North Carolina




NOTE
It is critical to select the right EMR. Not everyone can do the job ...

- Frequently asking employees at various levels and functions how the EMS is going
- Expressing personal goals for the EMS to the EMS leadership
- Using the “bully pulpit” carefully and only when needed to move the program forward
- Providing human as well as financial resources
- Helping your EMS teams to manage change
- Rewarding, acknowledging, and reinforcing the benefits that the EMS brings and the people who are making it happen

Another management key to success is to send three or four "good news" bullets to senior management on a monthly basis. This keeps the EMS on their agenda, and provides information for them to report at their management meetings and through other outreach activities (e.g., conferences, newsletters, civic meetings, etc.).

EMS Program Leadership: the EMR, Core and Site (Implementation) Teams

As you've probably gathered by now, the EMS is not a program that one person can put into place. In fact, every employee in your fenceline will be involved in some way in building and maintaining your EMS. One of the first responsibilities that you as top management face is to appoint an EMS champion. That person is the EMS program manager and in EMS terms is called the Environmental Management Representative, or EMR. The EMR, sometimes with recommendations from top management, will appoint a cross-functional team of EMS program leaders called the Core Team. These are the employees from various levels and functions in the fenceline who will become additional EMS experts, and assist the EMR in designing, delegating, and evaluating EMS activities. A third level of EMS leadership are the Implementation Teams. These are the employees and staff who are closest to the actual work in the operations of your fenceline. They have a huge amount of institutional know how and operational experience that is critical to a strong EMS.



NOTE
All of the wastewater facilities consulted for this Handbook have successfully implemented an EMS by using a full-time EMR or designated an EMR with other organizational responsibilities. The decision you make for an EMR will depend on the size of your facility and available resources.

In some cases, organizations decide to add a Steering Committee. Members of the Steering Committee often include City Commissioners, City Managers, Mayors, Council Members, and Directors of other municipal utilities and services. The Steering Committee’s job is to ensure that the EMS plans are consistent with the strategic vision of the city and to ensure that appropriate resources are allocated for the EMS.

Selecting an EMS Champion:
The Environmental Management Representative (EMR) is the clearly-identified EMS team leader who has responsibility and authority for implementing and maintaining the EMS. The EMR has the designated authority from management to get the job done and is pivotal to the success of your program. The fact that the EMR represents top management and speaks with its authority should be clearly stated and

regularly repeated throughout the EMS implementation, particularly in organizations where the EMS hierarchy doesn't mesh with the organizational hierarchy.

It's a good idea to make sure that your EMR gets sufficient EMS training before beginning to build your EMS. This Handbook will be extremely useful for making contact with other wastewater facilities (or any relevant organization for that matter) who have implemented an EMS—EMRs are always happy to share their experience and keys to success.

To locate additional information, or contact any of the Steering Committee members that contributed to this Handbook, visit www.peercenter.net.

In addition to being the EMS expert and champion, it's also useful if the EMR has a good knowledge of the overall operations, strong project management and organizational skills, and is a good communicator up and down the organizational hierarchy. The most successful EMRs are enthusiastic team players who are trusted and respected by all levels of staff. A sense of humor is always an added bonus.

The EMR typically assumes the new EMS responsibilities in addition to their existing responsibilities. In four out of the six wastewater facilities contributing to this Handbook this was the case. Be sure management understands the number of hours involved and is willing at times to redistribute some responsibilities to others in the organization. Charts have been included within this section for the EMS roles and number of hours the wastewater facilities that consulted for this guide spent in implementing their EMSs.

Typical EMR Responsibilities

The EMR is the project leader for the EMS and is essential to successful implementation as the EMS driver and key communicator. In addition to typical project manager responsibilities, the EMR can anticipate the following activities:

- Build and lead the EMS Core Team
- Plan the EMS project and implementation schedule
- Gather, organize, and disseminate information
- Delegate tasks and establish deadlines
- Facilitate top management visibility and involvement
- Obtain cross-functional support and buy-in
- Regularly meet and communicate with top management about the benefits and status of implementation

EMR Qualifications

- ❖ Knowledge of organization's business and management practices and core operations
- ❖ Environmental background
- ❖ Leadership and project management skills—team builder
- ❖ Systems thinker
- ❖ Good communicator up and down the ladder—relates to all levels of staff

NOTE



Experience with public organizations that have implemented an EMS has shown that EMS Core Teams have 2-12 members, with an average of 7 people. Consider including contractors, suppliers or other external parties as part of the Team, as appropriate.

“The Teams definitely need to be cross-functional, have buy-in into the program, and have the time to perform the tasks that were assigned to them. I think if we had to do it over again, and what we have done since initial development, is to create an EMS Team that is composed of a more diverse level of staff. Initially, all members were supervisors and now our group includes laboratory technicians, operators, assistant managers, and supervisory level staff. The buy-in from the frontline employees comes easier the more they are involved in the process.”

Beth Eckert
Gastonia, North Carolina
Public Works and Utilities Department

NOTE

Of the six wastewater facilities that assisted with this Handbook, four had Core or Site Team members that were not supportive of their EMSs (at least at first).



Do you have any potential EMS saboteurs in your organization? Many public organizations that have implemented EMSs have included saboteurs on their Core and Site Teams and turned them into supporters of the EMS.



COACH'S CORNER

An EMS Core Team should include cross-functional (e.g., engineering, finance, human resources, operations, etc.) representation and include members from top to bottom of the organization (i.e., management to the frontline). Members can even be pulled in from operations outside the scope of the EMS fenceline.

A cross-functional team can help to ensure that procedures are practical and effective and can build commitment to and “ownership” of the EMS.

The Core Team

The **EMS Core Team** plays an important leadership role in planning the EMS project, delegating the tasks, establishing deadlines, collecting and evaluating work, and providing training, guidance and assistance as needed. The EMR heads the Core Team, and its members are an organization’s EMS experts and champions.

Some organizations enlist volunteers for their team; others delegate and assign members to the Core Team. Keep in mind that the Core Team also needs the authority as well as responsibility to drive the EMS.

If your organization cannot get enough volunteers on the Core Team, consider making membership on the Team a prestigious honor. Get Top Management to recognize your EMS Core Team members.

“Congratulations, you’ve just been selected to our EMS Core Team!”

Wastewater Organization	Establish a Core Team?	# of Members *
Buncombe County, North Carolina Metropolitan Sewer District	Yes	7
Gastonia, North Carolina Public Works	Yes	8
San Diego, California Metropolitan Sewer District	Yes	10
Kent County, Delaware Public Works	Yes	8
Eugene, Oregon Public Works	Yes	8
Charleston, South Carolina Public Works	Yes	12

* *The size of your Core Team will depend on your organizational structure, specific employee skills and expertise, and your organization’s available resources.*

CASE STUDY

Charleston, South Carolina Public Works adopted a two-pronged approach. They first assembled a 12-person Steering Committee consisting of all department heads to obtain management buy-in. Second, they established local in-house EMS committees for functional areas, such as a local team for wastewater collection, one for wastewater treatment, etc.

REMEMBER



It takes time for the EMS Core Team to develop a team dynamic. Give yourselves time to “gel” and work together as a team. At first, have team meetings with some simple and non-threatening EMS activities. For example, work together on issues such as clarifying the meaning of key EMS terms and EMS jargon.

EMS Core Team Qualifications:

- “In the know” in their operational and functional areas
- Good communicators and listeners
- Enthusiastic and committed
- Respected and trusted by employees and managers

Implementation or Site Team(s)

The majority of public organizations that have implemented an EMS have also chosen to assemble an EMS implementation or site team—or several teams—to help with the development of various EMS elements. The make-up of the implementation teams typically consists of personnel from the frontline—personnel that are responsible for the activities and operations that generate potential significant environmental impacts.

View the establishment of an Site Team as an opportunity to secure buy-in at all levels of your organization. By involving staff in the EMS Implementation Team activities (e.g., environmental analysis), you can have greater assurance of their support and assistance.

Wastewater Organization	Establish a Site Team?	# of Members
Buncombe County, North Carolina Metropolitan Sewer District	Same as the Core Team	
Gastonia, North Carolina Public Works	Yes	8
San Diego, California Metropolitan Sewer District	No	--
Kent County, Delaware Public Works	Same as the Core Team	
Eugene, Oregon Public Works	Same as the Core Team	
Charleston, South Carolina Public Works	Yes	8

Typical Site Team Responsibilities:

- Documenting the organizational activities/operations as process flow diagrams
- Assisting with the identification of environmental impacts
- Providing input on environmental objectives
- Developing work instructions and/or standard operating procedures for activities or operations that were identified as significant
- Disseminating information and good news about the EMS effort—acting as EMS champions for their area of operation

It was definitely a plus to have a cross-sectional representation involved on EMS Team(s). The EMS Team members selected brought forth knowledge and expertise from their departments. The members were willing to learn and grow, and they also wanted to be involved with and be part of creating a culture shift (TQM, EMS) affecting the organization.

James Naber
Buncombe County, North Carolina
Metropolitan Sewer District

EMS Core and Site Team Keys to Success



- ◆ Ask for volunteers—if there are none, have section managers make appointments. They know the leaders.
- ◆ Make responsibilities clear to employees and to their managers.
- ◆ Reward/recognize their involvement.
- ◆ Secure their time commitment from management—be aware of peak operational times.
- ◆ Sometimes include the “bad apples” on the implementation team as a way to alleviate dissension at the pass.



NOTE

Based on your wastewater facility size, you may not need both an EMS Core and Site Team. For three of the six of the wastewater facilities that consulted for this Handbook, the Core and Site Teams were the same.

COACH'S CORNER



Conduct basic EMS training for employees up front. This will contribute to the EMR's ability to facilitate and direct the EMS development effort.

Initially, frontline employees were not involved. They slowly became involved as the EMS implementation moved along. Based on initial discussions with many of these staff members, their initial reaction to the program was that it be put up on a shelf and forgotten about. However, discussions with staff as the implementation progressed revealed that many of the employees were seeing potential benefits to personally and professionally and discovering how they can use the program to help them do their job better.

Beth Eckert

Gastonia, North Carolina

Public Works and Utilities Department

CASE STUDY

An Associate Recognition Program is in place for employees at the Charleston, South Carolina CPW. Under the Program, employees are nominated by other employees and management, based on productivity, contributing to goals, and being team-oriented and positive. Awards include peer recognition, cash, and parking privileges. A copy of Charleston's Associate Recognition Program is attached in Appendix B.

Lessons Learned Regarding Core and Site Teams

(from wastewater facilities):

- ◆ Don't pressure anyone not willing to serve.
- ◆ Be clear that each team member understands their role.
- ◆ LISTEN to concerns and try to address, don't dismiss, concerns early—catch and try to alleviate these concerns before they get back to the frontline.
- ◆ Let team members know that their opinions matter.
- ◆ Conduct team-building exercises to build a team dynamic.

Securing and Maintaining Employee Buy-in

The same concepts that you used for enlisting the support of your fenceline managers, supervisors, and union stewards can be applied to getting employee buy-in. Some employees may view an EMS as bureaucracy, the "flavor of the month," or added work or expense. There also may be resistance to change or fear of new responsibilities. To overcome these potential barriers, make sure that everyone understands why the organization needs an effective EMS, what their role is and how an EMS will help to control environmental (and safety) impacts in their areas and in day-to-day operations.

Get key employees involved in the EMS early and often. While the EMS is not technically challenging, the introduction of new ideas can be threatening for employees. Therefore it's important to get employee support from the beginning through ongoing, consistent, open dialogue on your EMS. Employees should understand what the organization wants the EMS to accomplish. This can go a long way toward gaining that support and answering the question of "what's in it for me?"

CASE STUDY

An EMS Commitment Statement was prepared and signed by all employees at the Charleston, South Carolina CPW (a copy is attached in Appendix B).

Communicate and ask employees for their EMS goals during the planning stages and throughout EMS implementation. Open employee dialogue, buy-in, and involvement will help ensure that the EMS is realistic, practical and adds value.



NOTE

3 of 5 = number of wastewater treatment facilities from the Wastewater Steering Committee that involved frontline employees during the initial stages of EMS planning and development.

EMS implementation requires participation by more than a single individual to be successful. Ultimately, your organization will want to institutionalize the EMS and create an atmosphere or culture where environmental management becomes business as usual across all day-to-day activities. Therefore, involving cross-sectional employees early in the planning of the EMS is the best way to promote short- and long-term commitment throughout the organization. Plus, it's a great way to gain support and ensure buy-in for the EMS.

Ideas for building a team approach to the EMS and involving employees from the very beginning include:

- Holding a kick-off meeting and invite top management; this helps everyone see the EMS as a priority.
- Talking the EMS up with employees, union stewards, middle managers, 2nd shifters, etc.
- Spending time talking with middle management and line supervisors. One-on-one conversations can identify their needs, concerns, and problem areas. The more your middle managers are involved in the initial stages of the EMS, the more support and buy-in you will get.
- Asking employees on the front-line what changes they would like to see in their operations as a result of the EMS (See Appendix B for a list of questions that a public works organization used in getting support and buy-in from frontline employees). However, don't overwhelm them with EMS "jargon."
- Posting EMS signs on bulletin boards, lunch-rooms, and near coffee and copy machines to familiarize staff with EMS words and the ideas.
- Advertising early successes to keep management and employees aware of EMS efforts.

"We worked to provide employees with the necessary tools (e.g., standard operating procedures) to successfully and consistently complete their work. With communication and documentation in place, change became easier and smoother. Allow time for employees to absorb information and adapt to change."

Chris Toth
City of San Diego
Wastewater Collection Division

CASE STUDY

At the Buncombe County, North Carolina MSD, employees from the very beginning were asked for their operational expertise and what they wanted to get from an EMS. Buncombe employees soon realized their ideas and efforts could make a difference.

Conducting an EMS Gap Analysis

Of all of the activities in the Getting Ready Phase, the Gap Analysis is your EMS leadership team's first foray into the actual world of EMS jargon and the requirements of a formal EMS. The Gap Analysis provides a current baseline assessment of the degree of conformance of existing policies, procedures and practices to standard EMS requirements.

Your EMS Gap Analysis will probably show that you have a number of EMS elements in place. Remember—you don't have to start from scratch!

COACH'S CORNER



Use your EMS Gap Analysis as a project planning and a communication tool. The Analysis will allow you to scope and budget the EMS effort by identifying your EMS gaps and by providing a preliminary level of effort to fill the gaps. Since this is typically the first exposure personnel have to the EMS, the EMR and Core Team, use the Gap Analysis to increase employee EMS awareness, communicate useful information about environmental issues to top management and frontline employees, and teach everyone about the basic EMS elements.

COACH'S CORNER



A few things to keep in mind as you implement your EMS:

- ☛ Help is available from your wastewater peers and from other public organizations— don't hesitate to use it. (See Appendix C for a list of your wastewater peers and other EMS resources.)
- ☛ Pace yourselves and do not stall in your EMS planning and implementation. Move quickly enough that your employees stay interested and engaged, but not so fast that those involved are overloaded.
- ☛ Don't re-invent the wheel— existing environmental programs and management practices should help you meet EMS requirements.
- ☛ Consultants can help you evaluate your EMS and suggest approaches used successfully elsewhere, but use them as facilitators. Your organization must manage the EMS, not the consultants.

NOTE

Personnel that conduct the gap analysis should have a basic understanding of your EMS. The EMR and EMS Core Team members are typically responsible for conducting the analysis. It involves reviewing documentation and interviewing personnel, through an established protocol.



It's recommended that the EMR, and some members of the Core and Implementation Teams conduct the Gap Analysis, and that these team members have a basic understanding of the EMS before they begin. It's also a good idea for top management to communicate to managers, directors, union stewards and supervisors—well in advance—what the gap analysis is, the reasons for doing it, and when it will take place. Schedule the Gap Analysis at a time convenient to fenceline managers if possible.

Conducting the Gap Analysis in-house rather than hiring an outside consultant is preferable for several reasons. First, it's a great tool to familiarize your Core Team and your EMR with the language of the EMS and the 17 requirements that make up the Plan-Do-Check-Act cycle. Second, it's an activity that allows the EMR to delegate some of the responsibility to several Core Team members, and to evaluate the skill set of the Core Team. Third, it's a good opportunity for the Core Team to work together for the first time to accomplish an important EMS milestone; and fourth, it's a great tool to open a dialogue between the Core Team and the Implementation Teams about the plans, procedures, SOPs, and records that currently exist in operational areas.

Finally, once you have completed your Gap Analysis, you'll have a good idea of how much work your organization needs to do to complete the EMS, and that will help you to allocate human and financial resources appropriately.

At the end of the Gap Analysis you'll have improved your Core Team dynamic, increased employee EMS awareness, communicated useful information about environmental issues to your senior management, and learned a lot about EMS elements and the scale of the implementation effort.

Wastewater Organization	Was a Gap Analysis Conducted?	Did you Use a Checklist?	% of EMS Elements in Place	Typical EMS Elements that were in Place
Buncombe County, North Carolina Metropolitan Sewer District	No	No	20%	> Legal & Other Requirements > Monitoring and Measurement
Charleston, South Carolina Public Works	Yes	Yes	40%	> Operational Controls
Eugene, Oregon Public Works	Yes	Yes	40%	> Standard Operating Procedures
Gastonia, North Carolina Public Works	Yes	Yes	15%	> Environmental, Health & Safety (EH&S) Training
Kent County, Delaware Public Works	Yes	Yes	60%	> Emergency Response
San Diego, California Metropolitan Sewer District	Yes	Yes	10%	Various EH&S Records > Management Review

What to Look for in the Gap Analysis

The protocol (or checklist) that you can use for the Gap Analysis will direct you in your efforts. You will review documentation, interview personnel, and assess whether you have documented procedures for internal and external communication, training, and management review, etc.

See Appendix B for an example EMS Gap Analysis Checklist.

The information you capture from the gap analysis will save you time further down the road and eliminate duplicating what already exists. Develop a gap report based on your findings and report to top management.

Managing Change: It's NOT Easy!

As you move forward with your EMS, you'll begin to realize that the challenge is not with technical issues but rather with organizational change. Most organizations don't like change. Managers, directors, and employees all are quite comfortable with the status quo.

“Change is good...but you go first!”

Managing change is an important factor in EMS implementation, and the entire EMS leadership must be involved. The Steering Committee and top management facilitate change by clearly showing through frequent communication and through their involvement early on in EMS awareness activities that the EMS is a priority for the organization and one that has their personal attention. The EMR, Core Team, and Implementation Teams are the change agents that are closest to the workforce. They must be ready to listen and respond to concerns and fears that the workforce expresses, for these issues are not ones to be swept aside or discounted. Ideally the EMS teams that you have selected will be staffed by people who have earned the trust and respect of their peers and colleagues. That is an important key to success in change management.

NOTE



As new elected officials (e.g., City Managers or Council) or senior managers at your facility come on board, there may be the perception that the EMS is not “their” initiative. This can result in reduced support and resources for the implementation effort. It's very important to educate the new leaders early on about the associated benefits of your EMS to secure their buy-in and support.

Brainstorm with your Core Team and Site Teams about the times when change went really well in your organization. What lessons can you learn from that experience that you can apply to the EMS program? Then recall a time when change went really badly in your organization. Apply these lessons to the EMS program as well.

Wastewater and Other Public Organizations' Keys to Success for Managing Change



- ◆ Secure active support/interaction from management
- ◆ Establish early dialogue and lines of communication
- ◆ Define opportunities for ownership and empowerment (e.g., incentive programs, etc.)
- ◆ Maintain consistency—keep EMS on the radar/visible
- ◆ Promote activity and involvement (e.g., an EMS comment box)

“Our organization learned that change could be a good thing and not something to be afraid of. We also learned that communication (two-way communication) with all relevant levels of staff can help to make changes smoother and more positive. It is amazing the different perspectives the various levels of staff have about what management may consider to be the most minor change and that if given the opportunity to be heard, how eager staff is to share their opinion.”

Beth Eckert
Gastonia, North Carolina
Public Works and Utilities Department

A Few Words About EMS Language/Jargon

The language/jargon of an EMS is typically a hurdle at the beginning of the EMS process. Words like “aspect,” “significance,” “target,” etc. have a specific meaning that is not necessarily intuitive or consistent when you begin your EMS implementation.

REMEMBER



Spend time with your EMS Core Team unlocking the meaning of certain EMS terms—this will save you hours down the road. Also, pass these language lessons on to managers and employees while conducting the gap analysis or during monthly all-hands meetings, etc.

You've conducted your Gap Analysis, obtained commitment and support from management, formed your EMS leadership teams, and given some thought to change management. Your Getting Ready Phase of EMS implementation is almost completed. Two more tasks await you: becoming acquainted with the strategy you'll use to implement the EMS and finding information resources and materials that will help you prepare your organization to build the EMS.

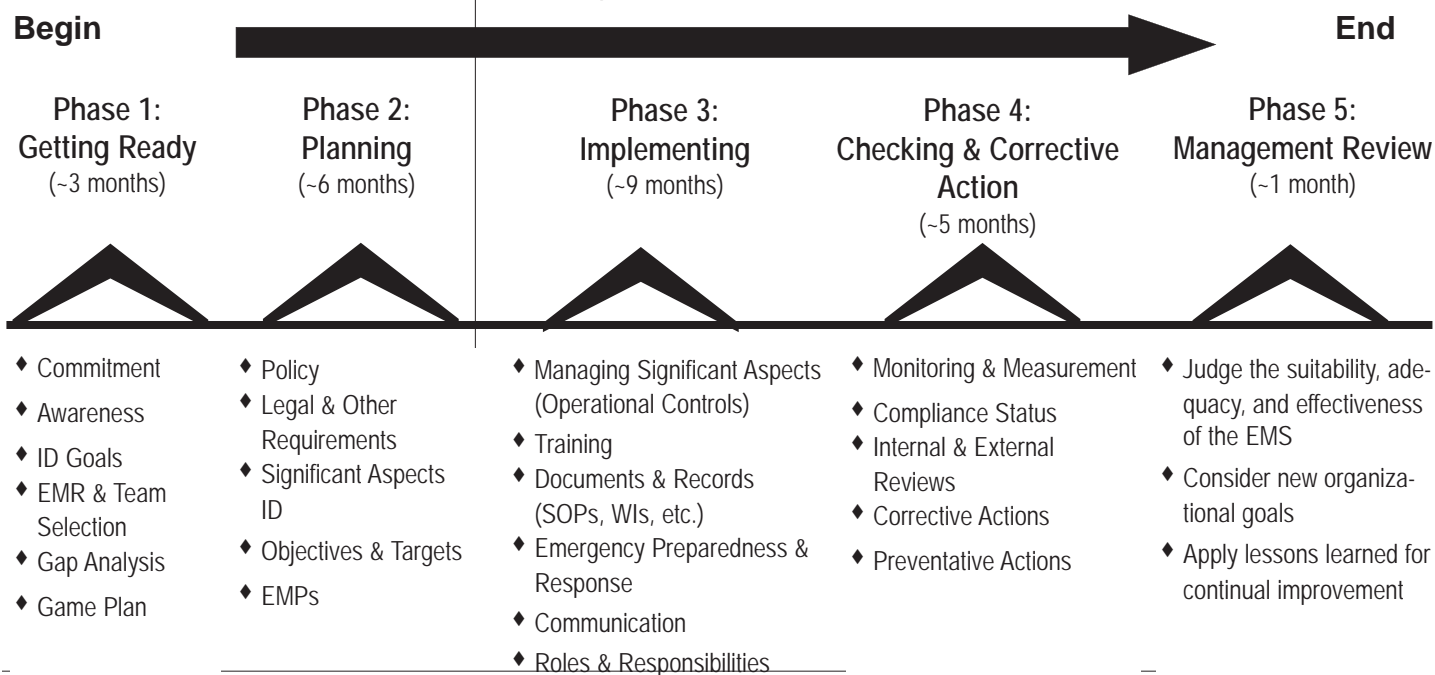
Understanding the EMS Implementation Strategy

The strategy used in this Wastewater EMS Handbook is one used successfully by over 50 organizations across the United States. It's a dynamic strategy, because it reflects the most current lessons learned, improvements, tools and materials that many different public agencies have gathered from the experiences of wastewater utilities and other public facilities like yours.

One way to describe the strategy is "just-in-time" implementation. As previously mentioned, when you are involved in a particular phase of EMS activity, there is no need to look ahead to what will happen in the next phase. We urge you to stay focused on the EMS milestones in the current phase. As you complete each milestone, you are one step closer to a complete and thorough EMS. The activities in each phase are designed to sequentially build a strong and thorough EMS.


While the EMS that you are building can certainly apply to any EMS based on the Plan-Do-Check-Act approach, this Handbook and implementation strategy are based on the ISO 14001 Environmental Management System. Should you determine at a later date that 3rd-party verification of your EMS is a sound business decision, you will have addressed all the elements described in the ISO 14001 EMS.

Here's an example program plan that describes the five phases of EMS implementation:



One question often asked is how long the implementation will take and how much direct labor and other resources your organization will commit. The timeline for waste utilities that have successfully implemented an EMS has averaged 12 - 24 months. Less time than that for implementation would require a huge amount of resources; longer than that detracts from the motivation and energy of the process. The time it takes your facility to implement an EMS will vary, depending on the length of the time for each phase of activity, operational and business realities that intrude on your normal workflow, and many other change issues that wastewater facilities are faced with each day. The timeline provides an average time of each phase. Here's some additional information from wastewater facilities around the country:

REMEMBER



Implementing an EMS is not a race to see who gets there first. Make sure that you devote sufficient time and resources to the EMS and get employee buy-in and support early and often.

Wastewater Organization	Size of Facility (in Millions of Gallons/Day = MGD)	Time in Months (from EMS Project Start to 1st Management Review)
Buncombe, North Carolina Wastewater Plant	40 MGD	22 Months
Buncombe County, North Carolina Metropolitan Sewer District	20 MGD	13 Months
Charleston, South Carolina Wastewater Collection System Department	40 - 74 MGD	18 Months
Charleston, South Carolina Environmental Resources	< 40 MGD	24 Months
City of Eugene, Oregon Wastewater	49 - 75 MGD	18 Months
Gastonia, North Carolina Wastewater - 2 treatment plants (includes a laboratory, the pretreatment program and a biosolids program)	6 MGD 16 MGD	18 Months
Kent County, Delaware Wastewater	15 MGD	Currently implementing an EMS
San Diego, California Operation & Maintenance Division	> 75 MGD	18 Months
San Diego, California Metropolitan Wastewater Collection Division	> 75 MGD	30 Months

These implementation averages will help you guide your organization through the EMS process. While they are specific to each organization, they should help you plan your program structure and prevent you from spending too much time on any one phase.

Another question asked by top management concerns the amount of direct labor support the EMS implementation will require. A rough average is 12 hours of time per year for each employee in your organization. Certainly your receptionist will probably not spend as much time on the EMS as your EMR or Core Team members, but over each year the total hours expended has held to this average. Direct labor costs to maintain your EMS will shrink considerably as the EMS becomes business as usual.

Here's some information about the resource commitment of wastewater facilities interviewed for this Handbook:

Wastewater Organization	Total Labor Cost	Total Consultant Cost (if applicable)	Total Cost to Implement (Labor, travel, materials, and consultants)	Wastewater Average Staff Time (EMS Project Start to 1st Management Review)
Buncombe, North Carolina Wastewater Plant	\$50,000	\$35,000	\$94,000	3,300 hours
Charleston, South Carolina Wastewater Collection System Department	Not Available	Not Available	Not Available	1,675 hours
Charleston, South Carolina Environmental Resources	Not Available	Not Available	Not Available	1,675 hours
City of Eugene, Oregon Wastewater	\$85,000	\$21,000	\$120,000	4,300 hours
Gastonia, North Carolina Wastewater (2 treatment plants, a laboratory, the pretreatment program and a biosolids program)	\$51,800	Not Applicable	\$53,800	Not Available
San Diego, California Metropolitan Wastewater Collection Division	\$211,000	\$90,000	\$308,000	6,200 hours
San Diego, California Operation & Maintenance Division	\$200,000	\$160,000	\$365,000	Not Available

Discuss with your management, your Core Team, and your Implementation Team a timeline that you feel is appropriate for your organization. Refer to your Gap Analysis to get a general sense of how much work needs to be done and the anticipated size of the program.

A list of key EMS implementation activities and the month they were completed by the wastewater facilities that contributed to this Handbook is attached at the end of this section.

EMS Roles and Hours Dedicated to EMS Implementation

Roles	Hours (from project start to completion of first management review)
Environmental Management Representative (EMR)	Average hours = 2,100 Range of hours = 1,000 to 3,000
Senior Management	Average hours = 30 Range of hours = 8 to 100
EMS Core Team	Average hours = 2,050 Range of hours = 1,800 to 2,500
Consultant(s)	Average hours = 315 Range of hours = 100 to 500

EMS Information Sources and Resources

The Getting Ready Phase involves educating many levels of employees in your facility: managers, the EMR, EMS leadership teams, and employees. This process of learning more about an EMS doesn't end in this phase, but continues throughout each of the subsequent phases. Assembled in this Handbook are excellent lists of information resources, some of which are contained in Appendix C of this Handbook; others are available on the Internet.

Some additional EMS Implementation Guides that have served wastewater utilities and other public entities over the past seven years include:

EMS: An Implementation Guide Small and Medium-Sized Organizations, Second Edition, NSF International, Ann Arbor, Michigan, January 2001.

An EMS Troubleshooters' Guide for Local Governments, Global Environment & Technology Foundation, Arlington, Virginia, October 2002.

The Internet is an excellent source of EMS information. One site that caters specifically to public entities implementing an EMS is the Public Entity EMS Resource Center—the PEER Center—Website at www.peercenter.net. Linked from the PEER Center are seven Local Resource Centers across the United States. Each has experience and expertise in facilitating EMSs in public entities.

Moving to the Next Phase

Congratulations! You have brought your organization through its first phase of EMS implementation. Here's a checklist of the EMS Milestones you've accomplished:

- ✓ Choosing your EMS "fenceline"
- ✓ Understanding your organizational goals
- ✓ Confirming top management commitment, involvement, visibility
- ✓ Selecting an EMS champion
- ✓ Building EMS teams
- ✓ Securing employee buy-in
- ✓ Conducting a Gap Analysis
- ✓ Managing change
- ✓ Understanding the implementation strategy
- ✓ Accessing EMS tools and information



Things to Avoid

1. Overburdening employees with EMS implementation tasks during peak operational periods.
2. Using EMS "jargon" when communicating with employees (e.g., instead of environmental aspect/impact, try cause/affect).
3. Waiting until the EMS management review to involve management in the EMS. Provide brief monthly reports/updates on the status of implementation to get management involved early on.
4. Stalling during your EMS planning—stick to a regular pace so that your employees remain engaged and interested in the EMS process.
5. Establishing implementation time frames that are unreasonable—don't bite off more than you can chew.

NOTE



Additional sources of EMS information that the Wastewater Steering Committee found useful are in Appendix C.

COACH'S CORNER



To increase your chances of continued management support for the EMS:

- ☛ Enlist the aid of top management frequently, and ask them to regularly be visible, provide resources, and make the EMS a priority (i.e., “wave the flag”). If your managers take a hands-on part in the EMS you will have an easier time with change and also have greater success in your EMS implementation.
- ☛ Clearly define who your top management is for the EMS and what goals are driving their interest in the EMS.
- ☛ Provide management at all levels with specifically designed training to help them understand EMS activities and milestones, the scope and timeframe of the program, and their role in the EMS process.
- ☛ Collect and record EMS performance and benefits throughout your EMS implementation. How are you improving your efficiency, saving money, avoiding accidents and spills, increasing environmental awareness and understanding, reaching out to stakeholders, etc. This information needs to be passed on to employees and to management (in the Management Review). In other words, document and celebrate your EMS successes as you go along!

As you complete this phase, it might be useful to document the lessons your EMR, Core Team and Implementation Teams have learned. What barriers did you experience? What benefits have you seen?

Some of the documents that you will have generated in the Getting Ready Phase include:

An EMS organizational chart showing the functions of those who serve as your EMR, your Core Team and Implementation Teams and, on your Steering Committee, if you have one.

A gap analysis showing what you already have in place that conforms to an EMS, and the areas that provide opportunities for improvement.

A list of **organizational goals** at the various levels and functions of your fenceline.

A tentative **timeline of EMS implementation** that is appropriate for your organization.

A list of **wastewater facility contacts** who have implemented an EMS in their own organizations.

A list of **public and private organization contacts** in your area who have implemented an EMS.

Your favorite **Websites** for EMS tools, materials, and information.

Barriers you have experienced in this phase.

Benefits you have experienced in this phase.

Lessons learned about implementing an EMS in your organization.

In the next Section of this Wastewater EMS Handbook, you'll find step-by-step guidance to help you and your EMS Leadership Teams accomplish the EMS milestones in each of the subsequent EMS phases. We hope you will take the time to share your experiences, data, case studies, lessons learned and keys to success with other wastewater facilities who will consider EMS implementation in the future.

Best of luck!

“It was learned early on that a phased approach to our EMS implementation was attainable and suitable to the needs of our organization. We didn't want to bite off more than we could chew.”

James Naber
Buncombe County, North Carolina
Metropolitan Sewer District

COACH'S CORNER



Methods used by other EMS Wastewater Practitioners to Promote Familiarity/Awareness of their EMSs—Let's borrow from their EMS Playbook!

1. Post EMS awareness signs and aspect/impact lists, objectives and targets, etc. on bulletin boards and throughout buildings, access areas, lunchrooms, and break rooms.
2. Use brochures, EMS videos, and EMS awareness reference cards.
3. Conduct EMS awareness training and hold face-to-face meetings.
4. Develop an EMS newsletter and monthly activity reports.
5. Create EMS information Websites.
6. Send emails on EMS basics that go out to all employees.
7. Hold an EMS slogan contest with a day of vacation as a prize to the winner.
8. Create an EMS character, catchy EMS acronym, and a simple message to inform employees about the EMS.
9. Develop creative and fun ways to present the EMS—kitchen magnets, screen savers, etc. with the EMS logo/character/acronym.

Lessons Learned

1. Keep EMS staff and core team meetings focused and efficient (provide food as an incentive!).
2. Implement a document control system for your procedures, documents and records early on in the EMS implementation process.
3. Contact other wastewater treatment facilities and other public organizations that have implemented an EMS to benefit from their knowledge. They are eager to share their insights.
4. Communicate implementation successes early on to help motivate management and all employees to the benefits of an EMS.
5. Make the EMS "system" dependent and not "person" dependent.

Frequently Asked Questions about Environmental Management Systems

Q. Where in my operations would an EMS be appropriate?

A. An EMS can be applied in one or more departments or operations across an organization. You should examine the organization's activities and services and determine where the EMS would best serve needs and organizational goals. The department(s) or facility(ies) to which you apply the EMS is called the "fenceline".

Q. To implement an EMS, do we have to start from scratch?

A. Much of what you have in place now for environmental management probably can be incorporated into an EMS. There is no need to "start over" and re-invent the wheel for environmental and other organizational programs that are in place. A gap analysis is a great way to determine what parts of an EMS may already exist. *See Appendix B for a Gap Analysis Checklist.*

Q. What is the purpose of an EMS Gap Analysis?

A. The requirements of an EMS are compared to an organization's current management and environmental programs. The gap analysis is used to determine EMS program priorities and for planning the path ahead for implementation.

Q. What is it going to cost to implement an EMS at my wastewater facility?

A. The cost of implementing your wastewater EMS will vary depending on the size of your facility (fenceline), if you use consultants, and the number of policies, procedures, work instructions, etc. you already have in place that meet the requirements of an EMS. Note the dollar and human resources spent on EMS implementation from wastewater facilities on page 36 of this Section. Use the lessons learned and keys to success from other wastewater organizations that have implemented an EMS and to use this Handbook as a resource.

Q. Can I implement an EMS without consultants?

A. Yes—although your current consultants can be a valuable resource for reviewing environmental compliance and assisting with other EMS tasks, we recommend you use them only as needed for the EMS. Remember, this is **your** EMS. Take ownership of your EMS by involving your own management and staff in implementation activities.

Q. Where can I find additional help on EMSs, especially in the wastewater sector?

A. The Wastewater Steering Committee that contributed their knowledge to this Handbook are providing you with a support network as you implement an EMS at your wastewater facility. Their POC information is listed in the front of this Handbook.

Appendix C contains EMS Websites and other excellent resources, some specifically tailored for wastewater and/or public organizations.

In addition, the Peer Center Website (www.peercenter.net) is specifically customized for the public wastewater industry, and therefore, will contain EMS tools, case studies, references, POCs, etc... for wastewater managers.