

US EPA ARCHIVE DOCUMENT

Appendix A: Workshop Training for Module 8

EMS Guide Meat Processing

Monitoring and Measurement and Corrective and Preventive Action

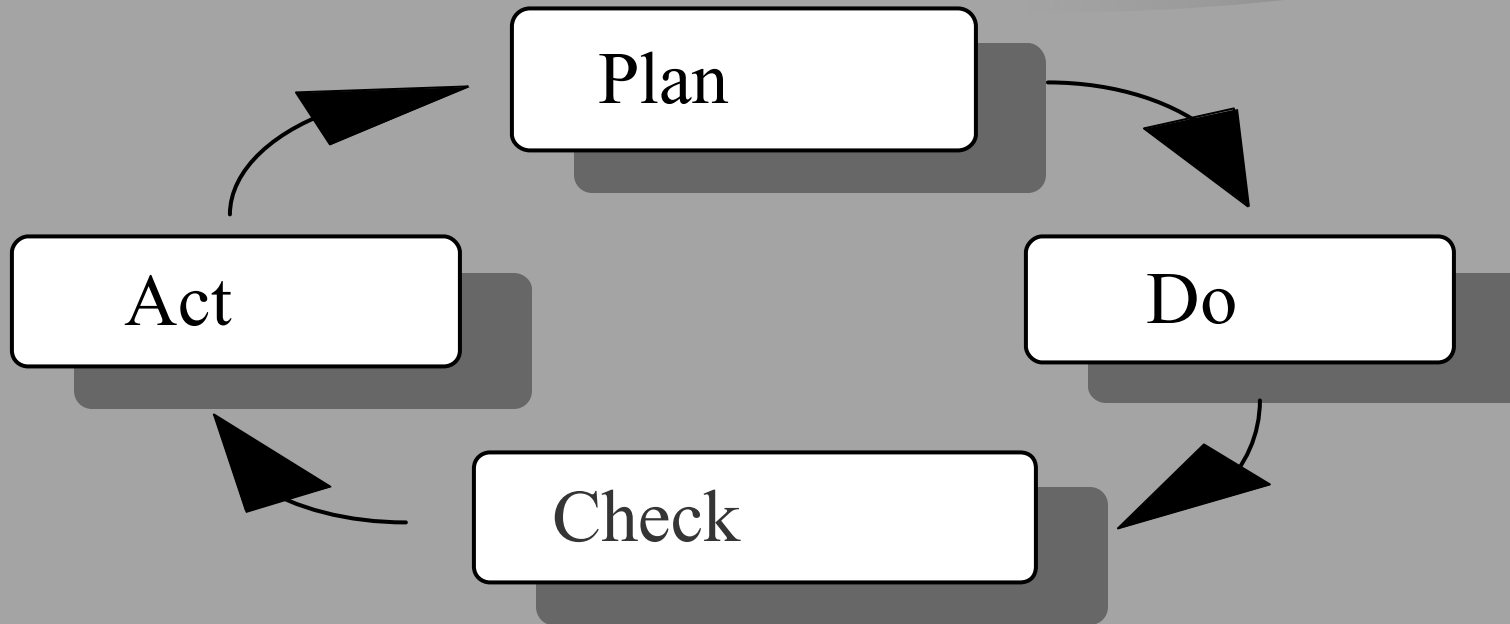


What Are We Doing Today?

- Monitoring and Measurement.
- Internal EMS Assessment.
- Corrective and Preventive Action.
- Example Procedures / Applications.
- Homework.



Remember The Context



Relationship Among Environmental Management System Elements



Review from Module 5

- Monitoring and measuring enables an organization to:
 - **evaluate environmental performance;**
 - **analyze root causes** of problems;
 - **assess compliance** with legal requirements;
 - **identify areas requiring corrective action;** and/or
 - **improve performance and increase efficiency.**



Why Monitor and Measure?

- To:
 - **track performance** in achieving objectives and targets;
 - **monitor the environmental critical control points** (equivalent of monitoring CCPs for HACCP);
 - **calibrate and maintain** monitoring equipment; and
 - **evaluate your compliance** with applicable laws and regulations.



Process vs. Outcome Measures

- Most effective measurement systems use a combination of **process** and **outcome** measures.
 - Process measures look at “**upstream**” factors.
 - i.e.: The amount of paint used per unit of product or the number of employees trained on a topic.
 - Outcome measures look at **results** of a process or activity.
 - i.e.: The amount of waste generated or the number of spills that took place.

Process vs. Outcome Measures

- Select a **combination** of process and outcome measures that are right for your plant.
- **Note:** This philosophy can be applied to **areas of performance** not directly related to any one process.



Performance Indicators

- Performance indicators can help you understand how well your EMS is working.
- Identify performance indicators that are:
 - **simple** and understandable;
 - **objective**;
 - **measurable**; and
 - **relevant** to what you are trying to achieve (i.e. objectives and targets).



Environmental Performance Indicators

Indicators of general environmental performance:

- Number of spills per year
- Amount of hazardous waste disposal
- Amount of waste reduction
- Number of legal non-compliance issues identified
- Number of exceedances of regulatory standards
- Number of incidents
- Number of public complaints
- Number and size of fines



Indicators vs Performance and Process Outcomes

- An **indicator** provides information on the success of many integrated elements (e.g. reduction of spills requires training programs, technology, resource availability and is ongoing).
- Often not absolute and used to show trends over time.
- Comparison of a series or group of performance outcome measures can be an indicator (total number of multimedia compliance audit findings is a indicator of the compliance assurance program success or failure).



EMS Performance Indicators

Indicators for the management system:

- Percentage of objectives and targets met on time
- Number of closed corrective actions vs total number
- Number of employee suggestions for improvements to environmental programs
- Training recipient assessments of training delivered
- Number of non-conformances in internal EMS assessments



Evaluating Compliance

- Monitoring and measurement needs to include a process for conducting and evaluating your environmental compliance status.
- Often a compliance audit is the tool used for this.
 - **Compliance audits** examine the compliance of an organization or a facility or operation with environmental regulations, permits, and limits, including corporate environmental policies.



Compliance Audits

- A documented compliance audit procedure or process describes the **roles, responsibilities, authorities** and schedule for evaluating compliance.
- Evaluating compliance needs to be an **ongoing** process.
- How does your plant know if it is in compliance or not?
- How does your plant know if it will be in compliance one month from now?



Audit vs. Assessment

Audit

- Formal detailed process designed to determine if a requirement is being met or not, by looking at a representative sample.
- May be performed using an external third party.
- For example: A financial audit does not look at every transaction but looks at selected ones in great detail.

Environmental Compliance Audit

- A snapshot (i.e. on the day of the audit) look to determine if the plant meets strict legal requirements. Often not even all environmental laws are covered with external audits.



Audit vs. Assessment

Assessment

- May be conducted using internal or external resources.
- Used to establish status relative to a standard or general requirement.

EMS Assessment

- To determine if the management system conforms with the EMS, as it has been defined.
- Look at all elements of the EMS and examine:
 - if the EMS requirements are being followed;
 - what supports success;
 - areas with potential for failure; and
 - possible corrective actions.



Conform with what?

- An EMS assessment checks for **conformance** with the EMS as you have defined it, including:
 - the EMS model you aspire to (e.g. ISO 14001, Meat Processing EMS Guide, Performance Track);
 - your commitments (e.g. policy commitments); and
 - the actual commitments you have made in your EMS procedures and documentation for environmental management (Note: ISO 14001 calls these your ‘planned arrangements’).



“Conformance vs Compliance”

- **Conformance:**
 - action in accordance with some specified EMS requirement.
- When we assess conformance we look at more than just a simple yes or no; aim to determine if the EMS requirement is being met.
- Distinction is important since EMS requirements are not simply yes / no answers.



Who does the Audit / Assessment?

- Independent third party (contractor or registrar)
 - + Objective and independent point of view
 - Learning curve to understand business and operations
- Corporate (or another plant in organization)
 - + Not involved in day to day activities and operations and knows the business
 - Other agenda? Independence
- Internal (staff from the operating plant)
 - + No learning curve
 - Independence and objectivity



ISO 14001 Registration

- RAB (Registration Accreditation Board) accredits registrars in the U.S.
- Registrars agree to codes of conduct and operate as commercial businesses.
- RAB certifies EMS auditors who have taken RAB Accredited Courses and have the required experience.
- Auditors working for Registrars audit EMS' and recommend registration to ISO 14001.



ISO 14001 Registration Process

- Hire a registrar that understands your business and that you can work with.
- Auditor reviews your EMS documentation and makes two site visits to audit your EMS.
- If the auditor is satisfied with your conformance, they will recommend registration and a certificate will be issued by registrar.
- Every 6 or 12 months after that, registrar visits to re-audit the EMS or parts of it and once every 3 years the entire EMS must be audited for re-registration.



Internal EMS Assessment

- Periodically assess whether all of the requirements of the EMS are being carried out **in the specified manner**.
- To identify and resolve EMS deficiencies you must **actively seek them out**.



Internal EMS Assessment

- For your EMS assessment program to be effective, you should:
 - develop assessment **procedures** and protocols;
 - determine an appropriate assessment **frequency**;
 - select and **train** your auditors/assessors; and
 - maintain assessment **records**.



Internal EMS Assessment

- Identification and reporting of EMS deficiencies provides an opportunity to:
 - maintain **management focus** on the environment;
 - **improve** the EMS and its performance; and
 - ensure the system's **cost effectiveness**.



Internal EMS Assessment

- Basic steps for doing an assessment include the following:
 - Select team members and provide training;
 - Plan the assessment (scope, criteria, schedule, other pertinent information);
 - Perform assessment; and
 - Evaluate and report assessment findings.



Internal EMS Assessment

- Select team and provide training;
 - This involves selecting the **team members** and assigning **responsibilities**.
 - Aim to match the talent and expertise of the team members with specific tasks or steps.
 - Assemble a team capable of being objective. They should not be involved in day to day execution of the EMS elements they will assess.



Assessment Team

- Training for the assessment should be both **initial** and **ongoing**.
- Traits of a good auditor/assessor:
 - **Independent** (of the activity being assessed);
 - **Objective**;
 - **Impartial**;
 - **Tactful**; and
 - **Attentive to detail**.



Internal EMS Assessment

- Plan the assessment;
- Identify and communicate the assessment:
 - Scope,
 - Criteria,
 - Schedule, and
 - Other pertinent information.



Activity 1: EMS Assessment Planning

- How would you begin to organize an assessment? Items to consider are:
 - Team members?
 - Parts of the EMS to be assessed (the entire EMS at one time or break it down into discrete elements for more frequent assessments)?
 - Timeline for completing the assessment?
 - Frequency of assessments?



Activity 1: EMS Assessment Planning

- Using the activity sheets provided, brainstorm how you would begin planning your EMS assessment.
- Start by considering how you would answer some of the previous questions.



See Hardcopy of Activity 1



EMS Assessment Planning

- To determine an appropriate frequency for conducting assessments, consider:
 - the nature of your **operations** and **activities**;
 - your significant environmental **aspects** / **impacts**;
 - the results of your **monitoring** processes; and
 - the results of **previous assessments**.



EMS Assessment Planning

- All parts of the EMS should be assessed **at least annually**.
- You can assess the **entire EMS** at one time or break it down into **discrete elements** for more frequent assessments.



Internal EMS Assessment

- Perform assessment;
 - A key part of the assessment is the **specific protocol**.
 - Can you describe the EMS as your plant has defined it? What are your EMS requirements?



Activity 2: Checklist

- How do you assess whether or not your plant conforms with your EMS?

What is your process for conducting an assessment?



Activity 2: Checklist

- Element – Legal and Other Requirements
- Step 1: Clarify what you have defined as required in your EMS for legal and other requirements.
- The EMS Checklist given in Module 1, Attachment 1-A is a starting point. Add to or expand on the list given in the checklist.
- Also review the Environmental Requirements Checklist given in Attachment 1-B.



Activity 2: Checklist

- Step 2: Outline how you will determine conformance with your EMS.
- Must **collect** and **verify evidence** to support an opinion on the status of the plant's progress in meeting the requirements as you have defined them.



Activity 2: Checklist

- The following steps may be used to gather evidence:
 - **Develop A Work Plan**
 - Your work plan should include verification strategies, sampling methods and time allocations.
 - In the case of legal and other requirements, consider which types of evidence you would want to focus on for the assessment:
 - Testimonial, - Documentary, and/or
 - Physical, - Circumstantial.



Activity 2: Checklist

– Gather Data

- What methods for collecting evidence would you consider using when looking at legal and other requirements?
- Evidence can be collected through:
 - interviews,
 - document review, and/or
 - observations of activities and conditions.
- Think about: what to ask, who to ask, where to look, and how you will adapt the approach as you collect evidence.
- Any indication of non-conformance should be recorded.

Activity 2: Checklist

- Compare Practices Against Your EMS
 - Be sure to document your conclusions from this comparison.



See Hardcopy of Activity 2



Activity 2: Lessons Learned

- Did you think to consider some of the following?
 - Policy
 - Does the plant's **environmental policy** specify a commitment to compliance with legal requirements?
 - Planning
 - Does the plant have a process for **identifying** its legal requirements?
 - Does the plant have established **measurable objectives and targets** to meet legal requirements?
 - Has the plant identified EPA/State **permits** and **ID numbers**?



Activity 2: Lessons Learned

– Implementation and Operation

- Has the plant established **roles and responsibilities** for compliance with legal requirements?
- Does the plant have defined procedures for **communicating** relevant information regarding legal requirements?
- Has the plant defined its training needs and have **environmental training** programs for specific training for those whose job and responsibilities involve activities directly related to compliance with legal requirements?
- Does the plant have **operation and maintenance programs** for equipment and for other operations that are related to legal compliance?



Activity 2: Lessons Learned

- Checking and Corrective Action
 - Does the plant have an active program for:
 - **detecting** non-conformance with legal requirements?
 - **preventing** non-conformance with legal requirements?
 - prompt **corrective action** of any non-conformance with legal requirements?



Tools

- See spreadsheet based on Attachment 1-A.
- Simple scoring process, some like a score, some like a pass/fail only.
- Major non-conformance vs. minor.

Interviews

- Information gathered through interviews should be verified by:
 - interviewing additional personnel, and
 - gathering additional information from independent sources, such as observations, records, results of existing measurements.
- Any statements that cannot be verified (due to time constraints or lack of additional information) should be identified as ‘non-verifiable’ on your working documents.



Interviews

- If there are no written instructions, to verify that what actually happens is what has been written, conduct interviews to determine the standard practice. Then gather evidence to determine if the standard practice is being followed.
- The same interview question may have to be asked of several individuals to establish a consistent response and to verify facts.



Interviews

- Any “yes” or “no” to a question on the checklist must be supported by evidence of the conformance or non-conformance.
- If the activity being assessed is documented in a procedure, you should find out if the instructions are readily available and being followed.

Activity 3: Collecting Evidence

- One of the key skills used in assessments is the “interview”.
- Interviewing is more than having a predefined set of questions, since often the next question to ask will be based on the previous answer.
- Getting someone to talk at ease about a topic helps a lot. Start with what they are most likely to know.



Activity 3: Collecting Evidence

- Select someone you do not normally work with and conduct a short interview. Ask them to explain how EPA and State legal requirements are tracked and then communicated to both management and staff in general at the plant.



See Hardcopy of Activity 3

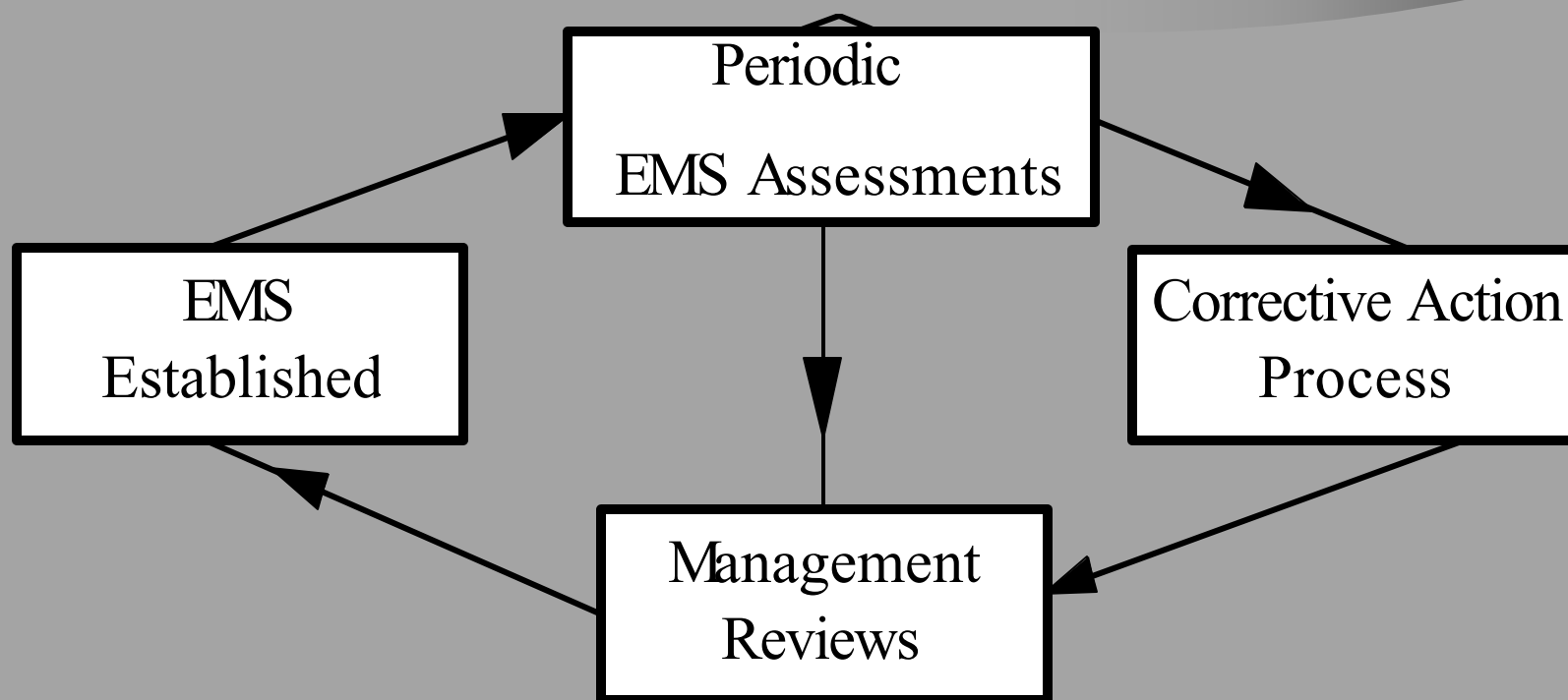


Assessment Results

- Evaluate and report audit findings;
 - Management needs to be able to use results to **identify trends or patterns** in EMS deficiencies.
 - Your organization should ensure that identified system gaps or deficiencies will be **corrected** in a timely fashion and corrective actions are **documented**.



Linkages Among EMS Audits, Corrective Action, and Management Review



Corrective & Preventive Actions

- To deal with system deficiencies, you need a process to ensure that:
 - **problems** (including non-conformances) are **identified and investigated**;
 - **root causes** are **identified** (See Module 5);
 - **corrective and preventive actions** are **identified and implemented**; and
 - **actions** are **tracked** and their **effectiveness is verified**.



Action Processes

Keys steps in taking action:

- identify the problem;
- investigate to identify the root cause;
- come up with a solution;
- implement solution;
- document solution;
- communicate solution; and
- evaluate effectiveness of solution.



Action Tracking

- Anyone can suggest an action. The EMS representative and management should decide the **priority level** for execution.
- The people who are responsible for work areas affected need to be part of tracking of solution implementation.
- Each action just like each project needs to have a leader.
- **Management support** for change should be visible.
- Set timelines that are tracked. Report to management on progress (e.g. at 20%, 80%, 100% completion).



Example

- Sources (internal assessments, reviews of root causes of identified issues during normal operations, monitoring trend analysis, management review).
- EMS representative coordinates / tracks actions but does not take primary responsibility for resolution. Coordination may include determination of if the “fix” worked.
- Operating managers are charged with making the changes happen and reporting back when completed.
- Actions may have many of the same characteristics as an EMP (dedication of resources, timing etc).

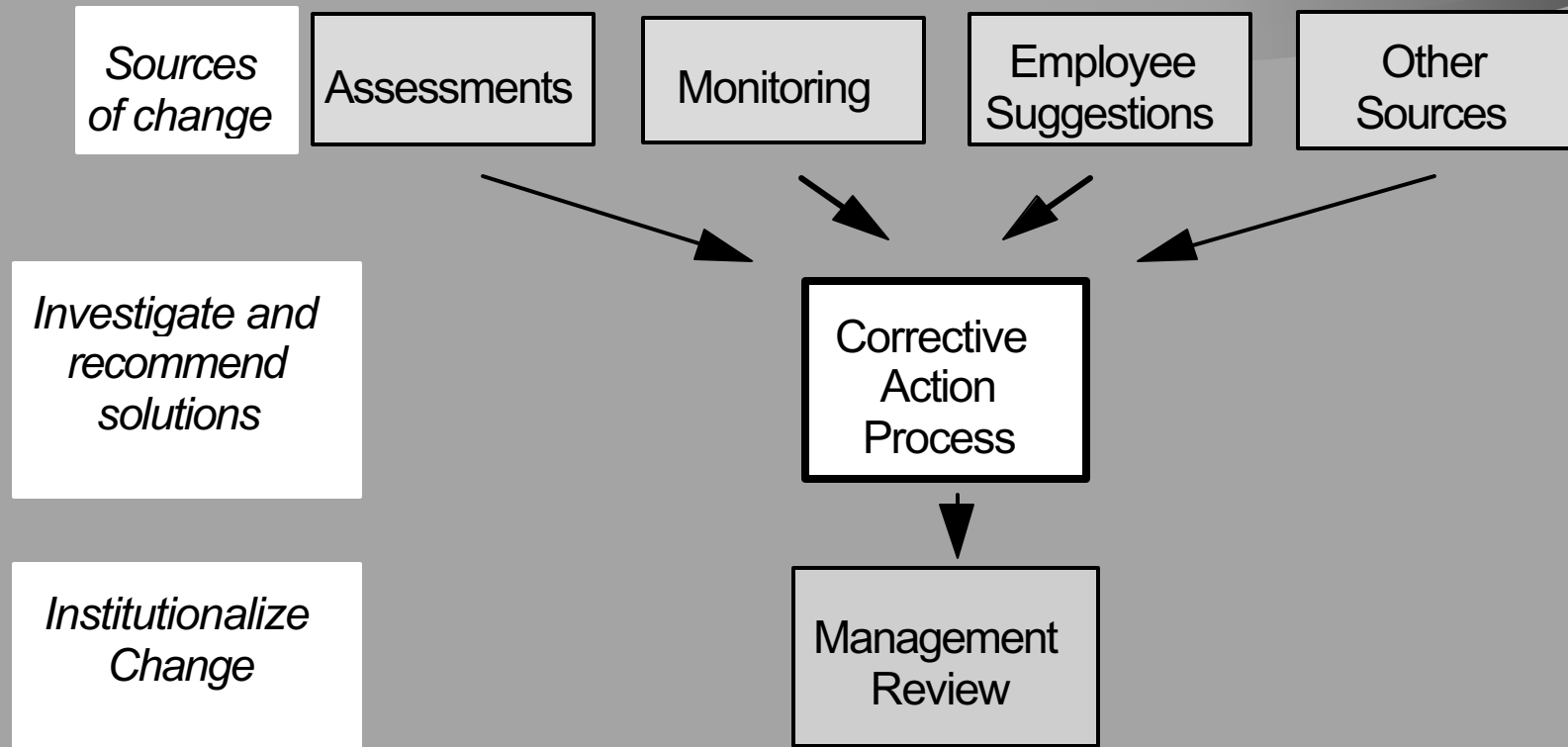


Tips

- The amount of planning and documentation needed will vary with the **severity** of the problem and its potential **impacts**.
- Action process should specify **responsibilities**, **resources**, and **schedules** for completion.
- Need to **look beneath the surface** to determine why problems occur.



Framework for Corrective Action Process



Corrective Actions

- Corrective actions should:
 - **resolve** the immediate problem;
 - consider whether the **same or similar problems** exist elsewhere in the organization; and
 - **prevent** the problem from recurring.



Preventive Actions

- Where to get these?
 - **Internal**, across the organization
 - **External**, benchmark, industry associations
- Identifying preventive actions is often a separate process from corrective, but once an action is identified as necessary the resolution is tracked similarly.



Homework

- Expand on EMS monitoring and measurement that you started in Module 5 to cover all appropriate areas of the EMS.
- Develop and begin use of corrective and preventative action processes.
- Define compliance and EMS assessment programs and consider when you will conduct them in the implementation process.

