National Mining Association
Core Safety SHMS Guidance Document

Introduction

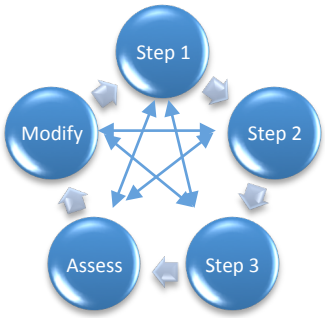
Management systems surround us in our daily lives, even if we don't always see them. They help manage our public traffic networks and help run our airports, railroads, ships, schools, hospitals and the military, for example. Mining companies have forms of management systems for planning, executing, evaluating and making changes to their production, maintenance, costs and other functions that are needed to keep facilities operating. These management systems generally use the "Plan, Do, Check, Act" (PDCA) model.

While there is growing evidence that companies that achieve world class performance rely on a systems approach, many mining companies do not use the same systematic approach to manage safety and health functions. Safety and health management systems (SHMS) are designed to provide guidance and structure through proven methods. Companies that effectively implement a SHMS often receive other benefits in the form of improved morale, reduced employee turnover and improved productivity, among others. Commonly used SHMS's include ANSI Z-10 and OHSAS 18001. The NMA CORESafety SHMS is aligned with these systems and was developed specifically for mining by experienced mine safety professionals. One way to explain safety and health management systems is to contrast them with safety programs. Safety programs tend to be narrowly focused and disconnected from key elements that have been shown to affect safety. These other elements include planning, leadership roles and responsibilities, training, policies and procedures and communications. Safety programs tend to be very linear with a start, in which a goal is set; a middle, in which specific steps are taken to achieve that goal; and an end, when the goal is met.

Program:

Systems have a defined structure with inputs, processes and outputs, but they emphasize feedback to ensure the processes are working properly. Systems are frequently cyclical and require you to do more than merely "check the box" as most safety programs do. The Plan, Do, Check, Act cycle is designed to drive continuous improvement in both the safety performance over time and the processes that result in good performance.

System:

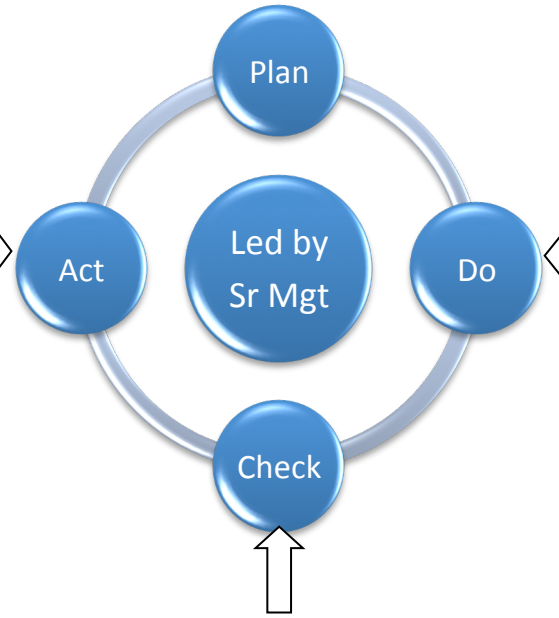


A management system is an interdependent collection of policies, procedures and processes designed to work together to achieve a specific goal, e.g. 0:50:5. An SHMS takes unrelated processes and integrates them into a cohesive structure to achieve a higher level of performance than would otherwise be possible. It is based on leadership and accountability.

Step 1: Become Familiar with Basic System Structures (Example Only)

- Develop or review your safety and health policy.
- Review incidents, near misses and training practices.
- Formulate a plan (e.g., annual safety plan) to improve safety performance based on available information.
- Develop a plan to identify and better manage risks in all departments.
- Determine how you will communicate safety and other information with the workforce.
- Discuss what written policies and procedures are needed to communicate expectations and avoid confusion among the workforce.
- Develop a schedule for leaders to review progress.
- Involve employees in planning for improvement.

- For things that were found to be effective, determine what can be done to improve them and keep them fresh.
- For things in your plan that did not work, determine if they can be improved or simply discontinued.
- Determine if training methods need to be improved.
- Keep in mind that too much change is not good.
- Determine what you can do to prevent non-compliant conditions from occurring again.



- Implement the plan.
- Evaluate risks in each department and verify the appropriate risk management policies and procedures are being used. Look at better ways to manage risk and implement improvements.
- Ensure lower leaders and line employees are carrying out the plan as developed.
- Continue to seek information from the workforce to determine their views about the plan.

- Evaluate how well you did on your plan.
- Observe work being performed to determine whether safeguards and procedures are followed and control the risk.
- Consult with employees to verify the plan was carried out and whether they think the plan is effective.
- Establish a schedule for the leadership team to discuss results, e.g., every 3 months.
- Ensure conditions in the mine are in compliance with legal and regulatory requirement and the plan.

Step 2: Assign Responsibilities & Fix Accountability

Before any system can be developed, senior management must support the effort and select a leader to guide other assigned leaders through the improvement process. These individuals are the life's blood of an effective SHMS. For every module (See CORESafety 20 Modules) and component within a module an individual (or individuals) should be formally responsible for ensuring the module or components operate effectively. They can be a senior manager, a department or mine manager, a safety and health professional, a member of the technical staff an hourly employee or some combination of those positions. Defining these areas of responsibility and accountability is vitally important.

Step 3: Implement System Structure

To implement the system, prepare a plan, just as if were a new project. Define the steps, the resources, the timing and individual(s) assigned to actively manage the plan. Start with the initial elements such as risk management, leadership, communication, etc., and ensure they are implemented first to start the change process and to achieve early progress.

Step 4: Ensure Personnel Know What to Do

The entire workforce must not only understand appropriate work instructions, they must also understand how the system works and their role in it. One of the key attributes of an SHMS is that it requires a methodical way of controlling risk in different ways. Some of these may be standardized work procedures and work permits. This means a lesser degree of freedom for workers to conduct their work as they see fit. It means injecting a source of stability and predictability to work procedures and holding workers accountable for following the procedures and holding supervisors accountable for ensuring their workers continue to use the procedures as trained. Ensuring everyone knows what to do means clarifying expectations and providing adequate training and education for each affected job and specific tasks to be completed.

Step 5: Communicate Excessively

You can never over-communicate during the implementation of a SHMS. In fact, it is a good sign if employees and managers complain they already understand what is needed and the company is becoming redundant. Use several methods to communication such as group meetings, newsletters, e-mails updates, website postings, written reports or other methods that provide effectively let people know what is going well and what is not. Informal communication such as one-on-one interaction, tailgate meetings are important also.

Step 6: Measure Progress

Both leading and trailing metrics should be used to determine if the system is causing any change in safety and health performance. Trailing indicators include incident rates and costs associated with safety and health incidents. Leading indicators include percentage of the SHMS fully implemented, percentage of the workforce with current training, percentage of the workforce judged to be competent, percentage of job tasks with current risk assessment available, percentage of the workforce involved in safety and health management activities, to name a few.

Step 7: Verify Function as Designed

Is the system working as designed? There are numerous inputs that can be used to answer that question, including, but not limited to, a system assessment or audit (internal or external), root cause analysis data to learn if any aspects of the system contributed or caused an incident, and feedback from SHMS leaders

Step 8: Take Corrective Action

Where the verification phase (feedback) indicates the system is failing to function as designed, each company has two options: 1) take action to improve the system; or 2) change the design of the system. Improvement plans should have specific, measureable, realistic goals with assigned responsibilities, target completion dates and someone to measure progress against target. In the rarer instance where company management elects to change the design of the system, it is usually the result of achieving the performance goal without relying heavily on the SHMS, or determining there was very little value from the system. Action plans should be communicated to all affected parties and relevant provisions of the change management process initiated – to ensure change itself doesn't increase risk or cause confusion, etc.

Review and decision making regarding action plans for SHMS improvement should be the domain of senior management and individuals responsible for the system elements.

Why Management Systems Succeed

It is relatively easy to create a robust, impressive looking management system *document*. People inside and outside the organization who read it will feel good and may even be genuinely impressed. However, the only type of system that matters is one that helps an organization consistently reduce risk and improve safety and health performance. The goal is to have an operationally effective management system. Here are five (5) reasons why SHMSs succeed:

1. **Customization:**
   a. The SHMS is designed and implemented to reduce or eliminate risks specific to the organization.
   b. The system also is customized to the organization and is not an off-the-shelf generic system. One size does not fit all.
2. **Leadership:**
   a. Senior management makes good decisions to reduce or eliminate risk and doesn't assume the system will make the decisions for them.
   b. Management support is regular and consistent and ensures the system is integrated and afforded importance by all affected departments and parties within the organization.
3. **Ownership:**
   a. The system is owned and understood by those that live with it and is not just developed in response to external demands.
   b. The system is owned and managed by senior management. Lower line managers, safety and health professionals and other staff members help senior management make the system work.
   c. Front line managers and workers know their roles in the system and were involved in its development and implementation.
   d. The system works operationally on a daily basis.
4. **Assurance:**
   a. The system is constantly reviewed for its effectiveness and is not merely viewed as a paper battle in which procedures are followed to comply with the system, regardless of effectiveness.

5. **Patience & Communication:**
    a. Parts of the organization and individual employees are likely to progress, or even take ownership, of the system at different rates. Don't give up, and don't stop communicating.