CORESAFETY®
Committed to Excellence in Mining Safety

Worksite Handbook

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CORESAFETY
Committed to Excellence in Mining Safety

1. Leadership Development
2. Responsibility and Accountability
3. Management Systems Coordination
4. Fatality Prevention / Risk Management
5. Training and Competence
6. Emergency Management
7. Culture Enhancement
8. Collaboration and Communication
9. Reinforcement and Recognition
10. Resources and Planning
11. Change Management
12. Work Procedures and Permits
13. Occupational Health
14. Incident Reporting and Investigation
15. Behavior Optimization
16. Safety and Health Management Assurance
17. Assurance
18. Documentation and Information Management
19. Engineering and Construction
20. Construction Management and Purchasing

NMA
National Mining Association

coresafety.org

MODULE

Leadership Development

Leadership development is the process of Identifying and developing employees in leadership positions or with leadership potential. These are individuals who can: Influence safety and health performance improvement; positively and knowingly affect safety culture; and help the organization achieve the goal of zero fatalities and a continual reduction in injuries -- the 0:50:5 goal.

The CORESafety Safety and Health Management System (SHMS) includes seven leadership expectations:

- Ensure all leaders understand the importance of their personal leadership, their responsibility to demonstrate their leadership and commitment to 0:50:5.
- Identify the desired leadership competencies specific to your company (to achieve 0:50:5) or adopt those recommended by **CORE**Safety.
- Determine the level of management that will undergo leadership development: line supervisors, middle managers, senior managers, etc.
- Assess managers to determine how they compare with the defined leadership competencies.
- Either develop and deliver your own leadership process, or access an external development process from NMA or a consultant.
- Ensure all managers who undergo formal leadership development create a personal development plan.
- Link each development plan with the company's performance management program to ensure that continuous improvement is sustained over time.

How it works

Leadership is critical for excellent safety and health performance. Effective leaders determine the importance given to safety and health management, help define and drive the culture, ensure adequate safety and health resources, set the example through personal behavior, communicate a strong personal safety and health vision for the company, and hold others accountable for their safety and health responsibilities.

CORESafety encourages management to set safety and health policy and expectations relative to safety and health performance and how it will be accomplished. They should collaborate and constantly communicate with all affected employees and other stakeholders and provide reinforcement and recognition for progress made. Senior management must take the responsibility to ensure their company's SHMS is well designed and effectively implemented. Companies should promote strong leadership and utilize a leadership development process to enhance their management team skill sets to yield optimal results.

Several factors should be considered when developing or selecting a leadership development program:

- Which specific competencies are needed to support the safety & health management system?
- How do the candidates get feedback on their current performance and on the specific competencies in which they have opportunities to improve?
- How is the program content delivered? Does it match the learning style of the participants? Adults learn differently from younger students.
- How long does the program last? A 2-3 day class is very unlikely to drive sustain able improvement. Exposing participants to new concepts over a longer period will improve learning.
- How does the operation's ongoing performance management system support the leadership development program? Classes alone will not succeed; participants must be held accountable for using their new skills in their daily routine.

Flow of the Process

Identifying Potential Leaders

Determining who is a safety and health leader will affect your approach to leadership development. Think carefully about leaders in your organization. Is it top line managers? What about staff positions? Is it anyone who can control their own behavior and influence others? If the latter is true, there are a number of strong leaders among the entire workforce, including non-salaried positions. Determining who is a safety and health leader for the purpose of achieving the 0:50:5 goals will affect your approach to leadership development.

There are a number of competencies that are strongly associated with safety performance. These include, but are not limited to:

- Accountability: Communicates clear safety roles and responsibilities, ensures people receive frequent, fair appraisal of efforts and results; holds people accountable for their responsibilities; applies positive and negative consequences as appropriate.
- Vision: Has and communicates a vision; describes compelling and vivid picture of what desired safety state could/needs to be.
- Credibility: Is perceived as honest and reliable, treats others with fairness, dignity and respect; follows through on commitments, even in difficult times.
- Action-oriented: Is performance oriented, proactive in reducing hazards and risks; persistent in solving safety problems.
- Communication: Maintains good interpersonal listening and speaking skills; actively keeps all people informed about relevant safety information and the big picture, as well as details.
- Collaboration: Promotes cooperation and collaboration to solve safety problems. Gets people involved.
- Feedback & recognition: Gives positive feedback about good safety performance, publicly recognizing safety contributions of others and celebrates safety success.

Leadership Development

Leadership development is a process that begins with leaders understanding their strengths and weaknesses. This understanding helps leaders focus on areas of potential improvement. To effectively influence safety and health performance improvement, leaders should:

- Hold themselves and their subordinates accountable
- Be action-oriented
- Be collaborative
- Be an effective communicator
- Have integrity
- Provide effective performance feedback
- Be systems-focused
- Have a personal vision and passion for safety excellence

Linking Leadership Development to Other Processes

Some people are natural leaders. The majority of leaders, however, can benefit from additional development of their leadership skills. Development does not end at the conclusion of leadership training. It should link to the company's performance management and succession planning processes. Leaders, who are held accountable, by themselves and by the company, will have far greater success in making change permanent and positive. They also Will have greater success in enhancing the organization's culture and ensuring adequate resources to achieve the 0:50:5 goals.

It is not necessary for every leader in every mining company to exhibit all of these competencies. Big changes in safety culture and performance can be realized with relatively small changes in leadership behavior. However, the more integrated these competencies and their resulting behaviors are for as many individual leaders as possible, the more positive change can be expected.

Workbook Materials For Module 1

Leadership Development

Responsible Person – A person authorized and empowered by management should be assigned to head the establishment of the leadership development program and serve as a facilitator for the group in identifying and developing employees in leadership positions.

Name: _____
Work Area: _____
Responsibility: _____

Work Areas – It may be desirable but not a priority to select leaders for specific areas or work groups. Leaders can and should come from any area if the employee matches the competency requirements of the program. Work area consideration may be preferable should there be a high hazard/risk potential and the elimination/mitigation plan requires progressive leadership.

Work Area 1 _____
Work Area 2 _____
Work Area 3 _____
Work Area 4 _____
Work Area 5 _____

Identifying Potential Leaders – To determine who among their peers is a safety and health leader, an individual must be evaluated against organizational specified competencies that are strongly associated with safety performance and in line with the seven leadership expectancies. Competencies should include but not limited to

- Accountability: Communicates clear safety roles and responsibilities, ensures people receive frequent, fair appraisal of efforts and results; holds people accountable for their responsibilities; applies positive/negative consequences as appropriate.

- Vision: Has and communicates a vision; describes a compelling and vivid picture of what desired safety state could/needs to be.
- Credibility: Is perceived as honest and reliable, treats others with fairness, dignity and respect; follows through on commitments, even in difficult times.
- Action-oriented: Is performance oriented, proactive in reducing hazards and risks; persistent in solving safety problems.
- Communication: Maintains good interpersonal listening and speaking skills; actively keeps all people informed about relevant safety information and the big picture, as well as details.
- Collaboration: Promotes cooperation and collaboration to solve safety problems. Gets people involved.
- Feedback & recognition: Gives positive feedback about good safety performance, publicly recognizing safety contributions of others and celebrates safety success.

Leadership Evaluation Worksheet

CANDIDATE: _____

WORK AREA: _____

JOB TITLE/RESPONSIBILITY: _____

WORKFORCE/SUPERVISORY: _____

MANAGEMENT LEVEL: _____

YEARS MANAGEMENT EXPERIENCE: _____

DIRECT REPORTS: _____

COMPETENCY RANKNG: _____

(Average of categories from following table)

LEADERSHIP COMPETENCY RANKING

	5 - Highest 1 - Lowest				
Competency	5	4	3	2	1
Accountability					
Vision					
Credibility					
Action-Oriented					
Communication					
Collaboration					
Feedback & Recognition					
Other					
Other					

REMARKS: _____

_____

_____

_____

_____

Leadership Development and Training

All leaders can benefit from additional development of their leadership skills. Development does not end at the conclusion of leadership training. It should link to the company's competency standards, performance management and succession planning processes.

For each competency standard a training development plan should be created with company expectations in mind. This plan shall be used for dedicated training to those who rank lower in their classification. The plan should also be used as an ongoing skills refresher program.

For each person chosen as a safety and health leader, using the leadership competency ranking, set a training program with timetable concentrating on the lowest ranked competencies.

Leadership Training Schedule

CANDIDATE: _____

WORK AREA: _____

JOB TITLE/RESPONSIBILITY: _____

WORKFORCE/SUPERVISORY: _____

MANAGEMENT LEVEL: _____

Training Schedule

	5 - Highest 1 - Lowest				
Competency	Ranking	Training Module	Date Scheduled	Person Responsible	Date Completed
Accountability					
Vision					
Credibility					
Action-Oriented					
Communication					
Collaboration					
Feedback & Recognition					
Other					
Other					

MODULE

Responsibility and Accountability

Employees are responsible for their own safety and for looking out for the safety of their co-workers. Consistent personal accountability should be instilled. Structured accountability also ensures personnel live up to their responsibilities through positive and negative consequences. Assigned and understood responsibilities along with appropriate accountability are common factors to the various components of **CORE**Safety and to your operations safety and health management system. A common theme should be to "Lead by Example." Leaders and managers at all levels are responsible for engaging and leading the workforce to achieve the 0:50:5 goal.

Responsibility and Accountability is the Process of:

- Setting appropriate safety and health goals
- Assuring all employees understand their safety and health management roles and responsibilities
- Providing sufficient resources to fulfill one's responsibilities
- Employing appropriate tools to measure and review for continuous improvement
- Applying positive and negative consequences relative to performance against responsibilities

How it works

An accountability system ensures all employees understand their specific roles and act consistently on those responsibilities. A successful accountability system:

- Emphasizes leadership by example
- Includes all employees
- Clearly identifies the work to be conducted
- Establishes responsibility goals at all levels of the organization that are:
    1. Appropriate
    2. Attainable
    3. Proactive

4. Directly aligned with achieving the 0:50:5 goal
5. Measurable to evaluate compliance and completion
6. Renewable at the end of an appropriate interval

The safety and health management system should contain performance measures that allow timely and meaningful evaluation of and feedback on progress toward successful completion of established goals. It should also include positive reinforcement and negative consequences in the evaluation process. This begins at pre-employment and evolves with the individual and the needs of the organization.

Flow of the Process

Leadership at all levels is accountable for achieving 0:50:5 goals

Managers must embrace the **CORE**Safety SHMS in efforts to reach the 0:50:5 benchmarks. The responsibility and accountability process should include:

- Identify personal and group safety and health management responsibilities for the entire workforce and ensure each person is aware of and acknowledges their role and responsibilities.
- Identify positive reinforcements and negative consequences specific to each person's safety and health responsibilities
- Provide time, knowledge and other resources necessary for personnel to successfully complete their safety and health responsibilities
- Periodically assess performance against target for each person and provide feed back
- Conduct a final performance review and apply consequences, as appropriate, at the end of the assessment period, e.g. shift, week, month, quarter, and/or year.

MODULE

Workbook Materials For Module 2

Leadership Commitment

The operation's highest ranking officer must commit his and the organization's dedication to the **CORE**Safety program and to its success. A corporate letter or mission statement should be drafted, confirming with signature support to the **CORE**Safety Pledge. This letter should be posted conspicuously at company facilities for all employees to witness and should be included as page one of the master **CORE**Safety document

Name of Corporate Officer:

Position in Organization:

Letter Completed: Yes ☐ **No** ☐ **Date of Letter:**

Designated Posting Areas: _____

_____

_____

CORESafety SHMS Plans

All plans, policies and procedures to be included for **CORE**Safety program compliance should be identified and adopted into the safety and health management system. For reference, documents should be identified by title, date, document number and subject area designation. i.e. ventilation, tools, confined space, roof control. etc.
All applicable plans should be included in the master **CORE**Safety document.

Plan/Policy	Subject	Plan No	Date (Latest Revision)

CORESafety SHMS Pan (cont.)

Plan/Policy	Subject	Plan No	Date (Latest Revision)

Identification of Responsible Parties

Beginning with the development of the overall SHMS and each of its plans and policies, identify each person responsible and accountable for compliance with the policy and/or regulation. Responsibility designation should begin with the highest level of management and continuing down to the workforce level. Assignments may be by position or name. This identification process could be performed by work area rather than encompassing an entire worksite.

Identification of Responsible Parties

Work Area	Plan/Policy	Person Responsible				
Example: Production Section	Ventilation	Mine Manager	Gen Mine Foreman	Shift Foreman	Section Foreman	Section Utility Man

Responsibilities of Designated Persons

The responsibilities of each person accountable for developing, communicating, implementing and maintaining the SHMS must be determined for each plan/policy area. Identified responsibilities should be specific and measurable with a timeframe set for completion and compliance. When planning individual responsibilities for each of the categories below, one should begin with the most senior level position involved as he/she associates to the plan or policy. Each plan should then be evaluated as to its status in regards to development, communicated, implementation, and compliance.

CORESafety SHMS Plans

Plan/Policy:

_____

Work Area:

_____

Plan Summary:

_____

_____

_____

_____

_____

_____

_____

Plan Status:

Development:

Person	Position	Responsibility	Scheduled Completion

Tools/Resources Needed:

_____

_____

_____

_____

Individual Training/Development Required:

Person	Position	Responsibility	Scheduled Completion

Plan Status: (cont.)

Communications:

Receiving Person/Group	Person Responsible to Communicate	Scheduled Date	Completed Date

A communication of plans should be considered as training with proper recording documents filed and retained for everyone who receives the information.

Implementation:

Person	Responsibility	Compliance Exception/Goal	Scheduled Date	Timeframe to Meet Goal

PLAN COMPLIANCE:

Once implemented the expectations must be monitored for compliance. While constant and continual compliance is expected, periodic review should be scheduled to measure results against the standard

Plan/Policy:

_____

_____

Work Area:

_____

_____

_____

Plan Summary:

_____

_____

_____

_____

_____

_____

_____

_____

Plan Compliance: (cont.)

Expectation/Goal:

_____

_____

_____

_____

_____

_____

_____

_____

Date Implimented: _____ **Goal Timeframe**: _____

Assessment Period: _____ **Performance Review Date:** _____

Findings Of Performance Review:

_____

_____

_____

_____

_____

_____

Plan Compliance: (cont.)

Results As Measured Against Compliance Expectation:

_____

_____

_____

_____

_____

_____

_____

Next Step Planning/Modifications Required:

_____

_____

_____

_____

_____

_____

_____

Next Performance Review: _____

Positive and Negative Consequences

When reviewed, the performance against target must be measured and evaluated for each person's responsibility and their role in meeting the goal expectation of the SHMS plan. A positive acknowledgement or reward program should be considered for those who have committed to and achieved the programs expectations. At the same time, corrective actions must be weighed for those who adversely affect the results leading to less than desired results.

Individual Action Plan

Name: _____

Plan/Policy: _____

Work Area: _____

Performance Review Date: _____

Findings of Performance Review:

_____

_____

_____

_____

_____

_____

Individual Action Plan (cont.)

Negtive Performance:

(Reiew of personelle files for training an disciplinary status)

Additional Training Required: _____

_____

_____

Training Scheduled: _____

_____

_____

Corrective Action Required: _____

_____

_____

Supervisor Responsible: _____

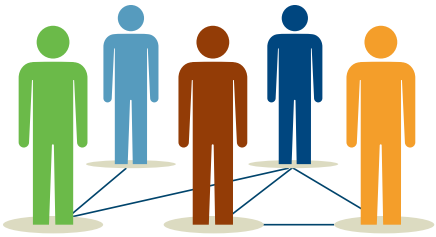
_____

_____

Date Completed: _____

MODULE

Management Systems Coordination



A Safety and Health Management System (SHMS) is the repeatable, integrated processes, procedures and actions that result from the system plan. It should be operations wide and must be coordinated and include the assignment of responsible persons to help steer and actively manage the system on its path forward. As the SHMS plan is developed and implemented, incorporation of **CORE**Safety into other operational systems should be considered in paralleling efforts to achieve the 0:50:5 goals across all departments.

Management System Coordination is the process of:

- Assigning responsibility for development and management of the **CORE**Safety safety and health management system.
- Developing a SHMS plan incorporating **CORE**Safety values
- Integrating **CORE**Safety into other company systems such as mine planning, operations, maintenance, contract management, human resources, information technology and others.
- Establishing a process to review and continually improve performance that affects the goals and objectives of **CORE**Safety and the SHMS.
- Establishing a process to review periodically and ensure the SHMS remains relevant and appropriate as the organization undergoes change

How it works

Because the **CORE**Safety SHMS will affect many aspects and all groups within the organization, it must be employed operations wide by integrating its principals into all company systems, e.g. planning, operations, maintenance, contract management, human resources, performance management, procurement, etc.

The **CORE**Safety management system coordination will require a senior manager to be designated with responsibility for ensuring a safety and health management system is developed and implemented within all affected departments, levels, facilities and business units within the organization.

The program must be periodically reviewed to measure success in meeting the 0:50:5 goals and to ensure continued performance improvement. These evaluations must include assurance that all programs remain applicable and pertain to the operation's goals as they move forward.

Flow of the Process

Designate Senior Leadership

At least one senior manager shall be assigned with formal responsibility for the development, implementation, operation, and maintenance of the **CORE**Safety SHMS. This includes and should parallel the expectations of Module 2, Responsibility and Accountability.

Develop and Communicate a CORESafety SHMS Policy

A company/operation specific policy shall be developed detailing the commitment to and implementation of the **CORE**Safety SHMS. This policy should serve as a descriptive outline of how the 20 Modules will be incorporated into the SHMS. The Policy must be communicated to all employees, contractors, and other stakeholders.

Develop a Written Safety and Health Management System Plan

A comprehensive plan that identifies the processes and responsibilities for developing, implementing, and verifying the **CORE**Safety SHMS will be developed and include a schedule for full implementation. The plan should include guidelines for roll out into all systems of the operation.

Ensure the SHMS Expectations Integrate with Responsibility and Accountability

Module 2 outlines procedures to help assure responsibility is assigned and persons are accountable for each expectation of the SHMS plan. Senior Leadership shall assure that each expectation is covered and is assigned ownership.

Ensure the SHMS Expectations Integrate with Other Company Systems & Departments

The S&H policy expectations should be consistent and adhered to by all departments within the organization. S&H standards should be considered as mandatory to all individuals working at the operation.

Ensure Proper Documentation

All parts of the SHMS shall be properly documented to assist responsible persons with the development, implementation, and monitoring of the program. Thorough evaluation and reporting documents should be developed and retained to allow for performance review and continued improvements.

Define and Budget the Financial and Time Resources

The development and maintenance costs and resource hours required shall be budgeted and tracked. As should any material expenditures needed to be included for fulfilling the SHMS.

Workbook Materials For Module 3

Senior Management Leader – A person authorized and empowered by executive management should be assigned to head the development, implementation and maintenance of the SHMS program.

Name: _____

Work Area: _____

Responsibility: _____

Safety and Health Management System Policy – Establish a Safety and Health Policy that clearly states the operations mission, commitment, goals, and responsibilities to CORESafety and to adopting its principals into the Safety and Health Management System.

CORESafety Safety and Health Management Policy

Policy Reference: _____

Responsible Persons:

Leader: _____

Committee: _____ _____

_____ _____

_____ _____

Executive Management Approval:

Name: _____

Title: _____

Draft Review Date: _____

Target Release Date: _____

Policy Highlights to Include:

_____ _____

_____ _____

_____ _____

Safety and Health System Development Plan

Prepare a comprehensive plan that identifies the processes and responsibilities for developing, implementing, and verifying the CORESafety SHMS.

CORESafety SHMS Development

Policy Reference: _____

Responsible Persons:

Leader: _____

Committee: _____ _____

_____ _____

_____ _____

Timeline:

Initial Planning Meeting: _____

Follow Up Schedule: _____

Final Draft Review Date: _____

Target Release Date: _____

Departments and Agencies to Include:

Department/Agency	Responsible Person
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

CORESafety SMHS Plan Outline:

_____

_____

_____

_____

_____

_____

CORESafety SHMS Plan Documents:

Plan Description	Plan No.	Date	Rev No./Date	Repository

Plans Incorporated into the SHMS:

Department/Plan	Plan No.	Date	Rev No./Date	Repository

CORESafety SHMS Implementation:

Responsible Persons:

Leader: _____

Committee: _____ _____

_____ _____

_____ _____

Timeline:

Plan Release Date: _____

Communication Dates: _____

Training Dates: _____

Roll Out Complete By: _____

Departments and Agencies to Include:

Department/Agency	Responsible Person
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Communication:

Group/Department	Responsible Person	Schedule
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

CORESafety SHMS Implementation (cont.):

Training:

Group/Department	Responsible Person	Schedule

CORESafety SHMS Rollout Dates:

Group/Department	Responsible Person	Schedule

CORESafety SHMS ASSESSMENT:

Responsible Persons:

Leader: _____

Committee: _____ _____

_____ _____

_____ _____

CORESafety SHMS Audit Schedule:

Group/Department	Responsible Person	Audit Dates

CORESafety SHMS Document Review:

Plan/Document No.	Date of Last Revision	Storage Type/Location

MODULE 4

Fatality Prevention/Risk Management

The persistence of high severity events suggests a new approach—rooted in safety management systems—is needed in order to have different mine safety outcomes. The backbone of this effort is the risk management process, which identifies risks associated with specific mining activities and ways to proactively mitigate those risks to prevent injuries and fatalities. The risk management process has been used by other industries and mining in other countries to successfully improve safety and health performance.

Risk management is the process of:

- Identifying safety and health hazards
- Evaluating the associated risk and consequences
- Developing controls to eliminate or minimize negative outcomes to an acceptable level
- The goal: Eliminate the risk or reduce it to the lowest practical level

The **CORE**Safety Safety and Health Management System (SHMS) is a systematic approach to risk management that calls for:

- Reviewing all safety and health hazards
- Assessing and prioritizing risk
- Applying controls systematically
- Verifying that controls remain effective over time

The term “risk” is often confused with hazard, so it is important to recognize they are not interchangeable. Hazard is defined as a source of potential harm, injury or detriment. Risk is defined as exposure to the consequences of uncertainty. It has two dimensions: the likelihood of something happening, and the consequences if it were to happen.

How it Works

Risk management starts with operation planning; it is conducted on an ongoing basis and is carried through to closure. Risk assessment can involve technical staff (engineers) managers and workers with appropriate knowledge and experience.

There are several steps to the risk assessment process. Each step is critical to the success of the effort, and management teams should assure adequate resources and time to give credibility to the outcomes. Risk management can be used at four levels: the entire operation, a specific process or installation, a task or set of job tasks, and the last level—personal risk assessment, e.g., SLAM, Take 5, etc.

Acceptable risk should be defined by management; however, risk-based decisions can and should be made by workers when they have the knowledge, training, and experience.

The risk assessment process:

- Sets clear direction to solve specific at-risk problems
- Focuses on priority concerns(hazards and risks)
- Gains commitment from a cross-section of the facility's work force through their active participation in the process
- Decreases potential losses for operations
- Helps build teams to solve major problems and improve the safety culture
- Goes beyond simply complying with existing standards and regulations

Flow of the Process

Establish context & scope

The risk assessment design or scope is best defined prior to the exercise. Hazards to be discussed, decisions on risk assessment team membership, and time allotment for the activity are best addressed with a scoping document. This document provides an opportunity to break down the process into reviewable parts and define goals.

A fundamental element of risk management is the risk assessment team. For major hazards, e.g., new mine, new development in an existing mine, new equipment, new mine process, etc. that tend to be complex, a full team of people is justified. However, for the small operator, the risk management process must be scalable. When a team is formed, it must include an appropriate cross-section of knowledgeable persons familiar with the hazards to be investigated. The team must be capable of identifying all relevant hazards, unwanted events and possible controls.

The facilitator is responsible for following a quality risk assessment process designed to meet the risk assessment scope and is responsible for making sure the team and the process remain focused on a quality output. The facilitator can be internal or external to the company, but must be someone with the appropriate qualifications, knowledge and experience. It is also important to consider non-management/labor entities for team participation. Miners responsible for performing tasks that are part of the work processes under review can validate information and provide insight, perspective and ideas that are invaluable to a quality output. These team members are also helpful in communicating adherence to existing prevention controls and recovery measures and in embracing changes brought about by the application of new ideas.

Understand the hazard

The first step is to identify all relevant hazards or possible problems that could lead to a potential event. If the list is incomplete, the risk assessment will be inadequate. There are many tools to help compile the list, including input from workers and managers, injury records, worker's compensation records, near miss reports, process flow diagrams, brainstorming and hazard identification. Risk assessment processes such as hazard and operability studies (HAZOP), fault tree analysis (FTA) and bow tie analysis (BTA) can also be effective.

The types of hazard that should be identified are best thought of as uncontrolled releases of energy that have the potential to cause significant harm. Energy that is not completely controlled leads to some level of risk, depending on the likelihood of release and the consequences should the energy be released. When the unwanted release occurs, it can cause serious injuries.

Identify the risk - Analyze & Evaluate risks

After a comprehensive list of hazards is identified and characterized, a broad-brush risk assessment tool is used to rank the potential unwanted events. Depending on the topic, the individual hazards should be broken down using a process mapping technique or by the geographic location within the operation. For each step in the work process or for each geographic location within the operation, a likelihood of occurrence and a consequence for each potential hazard are determined. Below is a generalized risk ranking matrix.

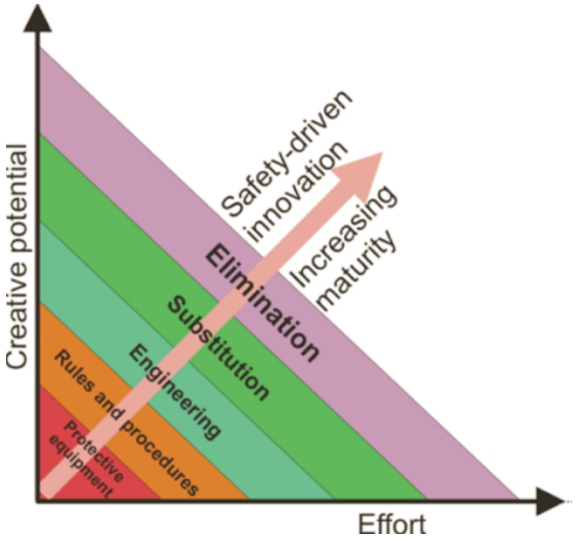
Likelihood	Consequence				
	1 Catastrophic	2 Major	3 Moderate	4 Minor	5 Insignificant
A Certain	Extreme	Extreme	Extreme	High	High
B Likely	Extreme	Extreme	High	High	Medium
C Possible	Extreme	Extreme	High	Medium	Low
D Unlikely	Extreme	High	Medium	Low	Low
E Rare	High	Medium	Medium	Low	Low

Consider the controls

Additional risk assessment tools are used to help determine what prevention controls and recovery measures are currently being used. The same process that identifies existing prevention controls and recovery measures is used to identify new prevention controls and recovery measures. When a hazard is eliminated, the risks associated with the hazard are also eliminated. This should always be the first action of the risk assessment team – to investigate how to eliminate the hazard. However, this is usually difficult to do, since a hazard can owe its origin to many different factors. If it is not possible to eliminate the hazard, attempts must be made to mitigate the potential effects of the hazard.

Mitigation consists of actions to minimize the hazard, most often with engineering methods, or to use physical barriers capable of separating the hazard from the worker or the work process. Warning devices are often used to assess the performance of engineering controls, and physical barriers are used to prompt a change in administrative or work processes.

Controls that are largely focused on operational and work processes include procedures and personnel skills and training. Procedures can often rely on the personnel skills and training of the worker. Reliance on worker behavior increases the potential for human error and reduces the effectiveness of the risk reduction control when compared to mitigation efforts.



This consideration of controls is a crucial step, since it potentially produces a list of actions to be investigated that are capable of further risk reductions at a site. It is important for management to consider the merits of each new idea suggested by the risk assessment team. At the end of this step, a detailed list of all prevention controls and recovery measures for the hazard in question are documented so they can be monitored and audited on some regular basis.

Treat the risk

The important output of the risk assessment team is the list of existing and new controls. Assessing the quality of this output can only be accomplished when the effectiveness of these controls is understood. The team should be cautious of an over-reliance on warning devices that require manual readings, administrative procedures, and the personnel skills and training of the work force. In general, treatments should strive to go beyond the standards and regulations for mining.

Monitor and review

A re-assessment of the site's hazards and an evaluation of the implemented risk mitigation program should be done on a regular basis by skilled and experienced personnel. This can be accomplished at three levels:

- A site assessing its own controls
- A site assessing its own controls using someone from the outside (2nd party)
- Site controls are assessed by an external entity (3rd party)

An audit and review should, at minimum, determine the status of the risk management plan and make recommendations for improving potential deficiencies in the plan. Tools, such as a risk checklist, are sometimes used to help with auditing and reviewing important controls at a mining operation. Once a risk mitigation program has been implemented, the change management procedure should be followed to ensure any new changes made to the operation don't introduce new hazards, alter existing risk or negatively affect controls.

Summary

The risk management process is a comprehensive method to identify, rank, and mitigate employee and community exposure to risks associated with the mining process. It must be scalable to all sizes and stages of mining operations and to every level of sophistication in the safety continuum. This is an introduction to the process. Additional resources are available in the CORESafety resource section. Like any new tool, using risk management takes time and patience, but can be a game-changer in terms of the degree of control and the positive impact on a company's safety culture and performance.

MODULE 4

Workbook Materials For Module 4

Process Scope

Work Areas

A cross-sectional team of knowledgeable persons, cross sectioned from all departments should be
assembled to identify the work areas that present hazards where significant injury or harm could result. A list of all areas should be developed to then be used to identify each hazard individually.

List each work area. i.e. production section, maintenance shop, warehouse, mine office, mobile equipment, preparation plan

a. _____
b. _____
c. _____
d. _____
e. _____
f. _____

Understand the Hazard

For each work area, identify all relevant hazards that could lead to a potential event. Associate the hazard with the job and persons involved. Hazard identification should include, but not be limited to; worker input, injury records, near miss reports, and agency regulations/guidelines. Current company policy and SHMS plans should also be considered.

Work Area:

List each HAZARD associated with the work area and job to be performed. Include a description and potential result if not addressed.

Hazard: _____

_____

_____

Work Area (cont.):

Hazard: _____

Hazard: _____

Hazard: _____

Hazard: _____

Hazard: _____

Identify the Risk

Analyze & Evaluate Risks – Once a comprehensive list of hazards is identified and characterized by work area, a risk assessment evaluation should be performed to rank the potential unwanted events. Ranking should be done with consideration to the likelihood of occurrence and consequence. The following matrix may be considered as a ranking tool.

Likelihood	Consequence				
	1 Catastrophic	2 Major	3 Moderate	4 Minor	5 Insignificant
A Certain	Extreme	Extreme	Extreme	High	High
B Likely	Extreme	Extreme	High	High	Medium
C Possible	Extreme	Extreme	High	Medium	Low
D Unlikely	Extreme	High	Medium	Low	Low
E Rare	High	Medium	Medium	Low	Low

Work Area:

For each HAZARD associated with the work area, rank the degree of risk as to the likelihood of occurrence and severity consequences. (Once comfortable with the process, this task may be completed during the hazard identification process)

Hazard: _____

_____

Likelihood (A-E): _____ Consequence (1-5): _____

Hazard: _____

_____

Likelihood (A-E): _____ Consequence (1-5): _____

Hazard: _____

_____

Likelihood (A-E): _____ Consequence (1-5): _____

Prioritize and Treat the risk – Consider the Controls

Prioritize and categorize the hazards by their evaluated degree of risk.

- Extreme: 1A-D, 2A-C, 3A
- High: 1E, 2D, 3 B-C, 4 A-B, 5A
- Medium: 2E, 3 D-E, 4C, 5B
- Low: 4 D-E, 5 C-E

For each hazard, beginning with those of potentially extreme risk, analyze the hazard details and design/implement controls to eliminate or mitigate the potential effects of the hazard to an acceptable level. Take into account all existing (company policy, SJP, agency regulations) and new controls, but strive to go beyond existing standards and mandates. Once Extreme risk hazards have been completed, move to the next category, High potential, and so on.

Work Area: _____

Hazard: _____

Risk Category: _____

Risk Description: _____

_____

_____

Controls to Eliminate/Mitigate: _____

_____

_____

_____

_____

Controls to Eliminate/Mitigate: _____

_____

_____

_____

_____

Monitor and Review

Establish a time period for the re-evaluation of each hazard/risk assessment plan. This audit should be;

- Regular and,
- Performed by skilled and experienced personnel.
    - Site assessing its own controls
    - Site assessing its own controls using someone from a 2nd party
    - Site controls are assessed by an external entity (3rd party)

Work Area: _____

Hazard: _____

Risk Management Plan #: _____

Scheduled Re-Evaluation:

_____

Responsible Person/Group:

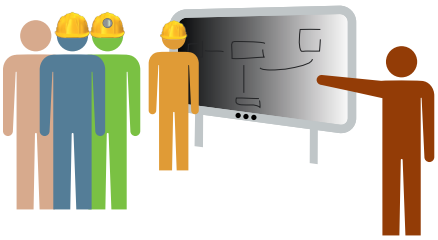
_____

Audit/Assessment Checklist #:

_____

MODULE 5

Training and Competence



Education (Knowledge) and training (knowing how to apply knowledge) are essential to an effective safety and health management system (SHMS). Workers who know: what is expected; understand the risks and hazards of their tasks; are well trained to eliminate or mitigate the risks; and, apply their knowledge and skills are far less likely to be injured or become ill from an occupational illness.

Training and competence validation is the process of:

- Determining required training
- Assessing training needs based on level, knowledge and skills required for each task.
- Ensuring workers know the hazards and risks of their assigned tasks
- Ensuring workers have been trained on how to do their jobs, taking all precautions to mitigate or eliminate the risks of the work performed
- Verifying worker competency through follow up observations and demonstrations.

How it works

Training Required: All tasks within a worker's job function should be reviewed giving priority to the hazards and risks associated and to the actions items required to mitigate or eliminate these risks. See Module 4. Safe Job Procedures and Hazard Training guidelines should be verified to be in place and complete to assure all hazards have been considered and the mitigating actions items are included.

Training Needs Assessment: The process shall include a training needs assessment to determine the level of knowledge and skill that will be required, how frequently training should be conducted and the initial and ongoing requirements to establish competency.

Quality of Instruction: Training that is based on adult learning methods (hands-on versus memorization) tend to be more effective. Regardless of the quality of the training materials, the quality of the learning is most significantly influenced by the quality of the instruction. As such, train the trainer development is very useful.

Verification: Being educated or undergoing training is not sufficient. What is more important is how well the worker is able to apply knowledge and skill – whether they are competent. Safety and health excellence requires more than just offering mandated or discretionary training: it requires verification that those trained are competent by demonstrating the acquired knowledge and skills.

Flow of the Process

Conduct Training Needs Assessments for All Workforce Tasks

Training programs and materials must include all hazards and risks associated with the job and the action items required to eliminate or mitigate to an acceptable level. When evaluating risk, global, corporate, and site identified significant risks should be considered. Energy lock out, working at heights, hot work, confined space, are identified risks that are included in many job functions. A more complete list to check against can be found in the Module 5, **CORE**Safety resources page. These programs should include the minimum skill level required by the employee and the procedures required to be demonstrated to assure competency. The assessment process should include specifying the type of training to be performed. i.e. classroom, hands on field instruction, expectations, etc. The assessment should consider the amount and frequency of training, initial, ongoing, and periodic refresher.

Conduct Training Needs Assessments for All Site Based Health and Safety Requirements

Prior to performing any work on site, any new employee, visitor, contractor or vendor is required to receive training on the health and safety risks associated with their site assignment. An assessment of the hazards and risks for each site assignment is required and training programs and plans should be developed addressing the risks that a group may be exposed to.

Consider Mandated Regulatory (MSHA/OSHA) Training Requirements in OH&S Plan Training

Site OH&S Plan training programs should be combined with regulatory training requirements. Any common subjects can be integrated maximizing the emphasis of the requirement.

Develop a Competency Assurance Assessment for All Trainers

When assessing the training programs and required training for each task, trainer competency and verification must be considered. Establish a guideline to certify all trainers are adequately competent to deliver the needed training. A train the trainer program should be considered within the health and safety resources.

Develop a Competency Assurance Assessment for Trained Personnel

The OH&S training program shall include a verification process that certifies a person has been sufficiently trained and has the skill level to safely perform the tasks of his job responsibilities. The assessment process should have a definite timeline and include demonstrated procedures that are used to determine competency.

Develop Train the Trainer Programs

Consideration should be given to establish train the trainer programs that use subject matter experts, training persons to be competent and understand the hazards, risks, and skills required for the workers to safely perform their job.

Integrate Training & Competence Expectations into all Modules with Training Requirements

Modules 3, 4, 7, 8, 9, 10, 12 and 19 include training consideration. The protocols of this Module should be included in the standards of these modules.

Record Keeping

Training and competency records shall be created and maintained to document employee status on the basis of appropriate education, training, experience, as well as observation. Regulatory requirements for orientation, hazard, and task training must be included.

Workbook Materials For Module 5

Training Assessment/Competency Assurance

For each job assignment an assessment should be completed to assure persons performing the work have been properly trained and are competent with skills and knowledge of how to complete the job safely. The assessment is to include a process to continually evaluate the individual's competency level and his or her efforts to maintain the standard.

Employee/Group: _____

Job Assignment: _____

Work Area: _____

Employee Classification: _____

Job Tasks For Classification:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Assess for Each Task - Training

Task: _____

Type Training Required: _____

Training Required By Regulation: Yes ____ No _____ Agency: _____

Are Training Materials Available For The Task: Yes ____ No _____

Training Materials Required: _____

_____

_____

Do The Training Materials Addess The Risk And Actions To Mitigate: Yes ___ No ____

Has Employee Received Training: Yes _____ No _____

Date of Training: _____

Trained By: _____

Training Materials/Methods Used: _____

_____

Documentation: _____ (form type/number)

Record Location: _____

Periodic Refresher Required: Yes _____ No _____

Frequency: _____

Next Date: _____

Comments:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Assess for Each Task - Competency

Task: _____

Type Training Completed: _____

Date of Training: _____

Trained By: _____

Training Materials/Methods Used: _____

_____

Competency Assessment Date: _____

Person Assessing: _____

Type of Assessment:

Document Review: _____

Observation: _____

Demonstration: _____

Findings: _____

_____

_____

Competent To Perform Job: Yes _____ No _____

If no, action plan required: _____

_____

_____

Follow Up Schedule: _____

Trainer Assessment/Train-the-Trainer

In order to adequately train and educate an employee on safe job performance, the trainer must be fully aware of associated risks and knowledgeable of the task. Trainer competency verification must be considered. Training need not be completed by persons assigned to a training position. Hazard or task training may indeed be given by a co-worker knowledgeable and experienced in the task. However, whoever delivers training; a responsible person must determine the person has been deemed competent in understanding the job risks themselves. Task knowledgeable persons should be considered to establish a train-the-trainer program, expanding the competency and skills capabilities within the organization.

Employee: _____

Job Assignment: _____

Work Area: _____

Qualified to Perform the Following Training: (Hazard, SOP Task, Refresher, etc.)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Training Certifications/Qualifications:

_____

_____

Continuing Development Plan:

Action Needed: _____

_____

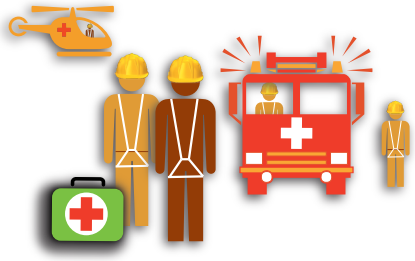
_____

Shedule: _____

_____

MODULE 6

Emergency Management



Emergency and Crisis Management is the process of: Identifying, planning for and responding appropriately to emergency and crisis situations through emergency prevention and action plans that include:

- Identifying emergencies which effect health and safety, have environmental impact or cause business interruption.
- Resource allocation
- Training
- Emergency response communication and coordination

How it works

An effective safety and health management system is designed to prevent incidents of significant risk from occurring. However, there remains the potential for uncontrollable factors such as natural disasters, workplace terrorism, and emergencies that override safeguards and controls. For these instances, a well-designed, trained and tested emergency and crisis management system is necessary.

Proper programs and planning can mitigate the risk, prevent a worsening of an emergency and by protecting responders, prevent additional incidents from occurring. Companies must have the capability to respond appropriately to emergency and crisis situations.

Emergency management includes:

- Significant Event Identification – Determine and rank by risk those emergency or crisis events which could:
  - Affect the health and safety of an operations workforce or surrounding community
  - Have an environmental impact on the operation or the surrounding community
  - Have an impact on the business continuity of the operation

- Emergency Prevention – Determine what plans and actions items are needed to eliminate or mitigate to an acceptable level the possibility of a non-emergency from becoming an emergency.
- Planning – Should an unexpected emergency occur, how should the operation respond
- Emergency Resources – What materials, equipment, information, organizations, and people are needed to respond to the emergency
- Training – Who needs to do what when an emergency occurs?
- Coordination and Communication – What government agencies and non-governmental stakeholders need to be involved and how do we coordinate to manage the emergency with key groups?
    - Media – Where will the media be staged, who will liaison and how will up dates/briefings be provided?
    - Families – How will families' privacy be ensured and their needs met, and how will families be segregated from facilities provided for the media? How will communication be conducted with the families?
- Recovery – Once the real emergency is addressed, how do we recover?

Flow of the Process

Develop a Site Specific Emergency Response Plan

A site specific plan, developed by a crisis management team including subject experts, should be based on a critical assessment of potential emergency scenarios and their risk impact on health and safety, environmental control, and business continuity.

Communicate

All potentially affected personnel, organizations, agencies, communities, and stakeholders should be briefed and aware of their role in the specific emergencies identified in the plan.

Train

Emergency response drills, both roundtable and actual should be conducted with sufficient frequency and intent to assure confidence in the event of a real emergency. All parties

expected to respond to the emergency should be involved in the training and actual drills. Roundtable planning sessions should be considered and include all responding management and emergency personnel/organizations.

Annually Evaluate the Adequacy of the ERP

At least annually the ERP should be audited and reviewed for adequacy. All parts of the plan should be reviewed and amended as needed to assure that all procedures and protocols are up to date and communicated to the affected parties.

Workbook Materials For Module 6

Emergency Management Responsible Persons

Persons authorized and empowered by management should be assigned to head the development, implementation and maintenance of the Emergency Management System.

Team Leader: ______________________________
Work Area: ______________________________
Responsibility: ______________________________

EMS Team:

Member:	____________	Member:	____________
Work Area:	____________	Work Area:	____________
Responsibility:	____________	Responsibility:	____________
Subject Expert:	____________	Subject Expert:	____________
Member:	____________	Member:	____________
Work Area:	____________	Work Area:	____________
Responsibility:	____________	Responsibility:	____________
Subject Expert:	____________	Subject Expert:	____________
Member:	____________	Member:	____________
Work Area:	____________	Work Area:	____________
Responsibility:	____________	Responsibility:	____________
Subject Expert:	____________	Subject Expert:	____________
Member:	____________	Member:	____________
Work Area:	____________	Work Area:	____________
Responsibility:	____________	Responsibility:	____________
Subject Expert:	____________	Subject Expert:	____________

Site Critical Risks

Emergency and crisis events should be identified as they pertain to health and safety, environmental impact, and business interruption. Each event should be ranked considering the consequences and using a risk matrix similar to that of Module 4. For each critical event, mitigated critical controls with implementation action plans should be developed.

Site Critical Risk: _____

Risk Value: _____

Responsible Persons:

Leader: _____ _____

Subject Experts: _____ _____

_____ _____

_____ _____

Potential Consequences:

_____ Risk Value: _____

_____ Risk Value: _____

_____ Risk Value: _____

_____ Risk Value: _____

_____ Risk Value: _____

Mitigating Critical Controls: _____

(List by Most Effective) _____

_____

_____

_____

_____

Action Plans: (Complete for each critical control)

Critical Control: _____

Action to Implement: _____

_____

_____

Due Date: _____

Responsible Person: _____

Follow Up Date: _____

Status: _____

_____

_____

Site Emergency Response

Should an unexpected significant event occur, an organization must be prepared to and have the capability to respond appropriately to the emergency and crisis situation. Time is the most critical factor to manage. How persons react to an emergency is of extreme importance. However, the decision to activate the Emergency Response Team must be made quickly.

Emergency Event: _____

Responders Required: _____ _____

_____ _____

_____ _____

Person to Notify:	Person/Group	Phone Number
Security:	_____	_____
	_____	_____
Safety Department:	_____	_____
	_____	_____
Management:	_____	_____
	_____	_____
Human Resources:	_____	_____
	_____	_____
Engineering Dept.:	_____	_____
	_____	_____
Agencies:	_____	_____
	_____	_____
Off Site Response:	_____	_____
	_____	_____
Community Services:	_____	_____
	_____	_____
Media:	_____	_____
	_____	_____

Notification Procedures

Establish the protocols for the process taking into all communications needed from the initial reporting of the accident through the response and handling of the event.

- Who should the incident be reported to
- Information needed from person(s) reporting the incident
- Questions the person being notified should ask
- Protocol for notifying other parties
- Communications during event response
- Family and Media Updates
- Communication equipment to have in place

Responsibilities

Identify and document the responsibilities and actions for each of the responders and persons to notify listed above. Keeping in mind the tasks will be specific and may include:

- Next notification
- Facilities to prepare
- Information to supply
- Action needed to respond and handle situation

For these critical event responses, each action must have a person responsible to assure each critical step gets completed.

Emergency Resources

Identify and list all equipment and/or information which may be needed to respond to the emergency. Cooperation will be needed with offsite responders and services to assure any site specific materials are available to them.

Responding Person/Group: _____

Equipment/Materials: _____

_____

Location: _____

Person Responsible: _____

Coordination of Non-Responder Groups and Agencies

Individual/Group/Agency: _____

Person Responsible: _____

Actions Needed: _____

Staging Area: _____

Communications Needed: _____

Frequency of Notifications: _____

Other Accommodations: _____

Training and Drills

Emergency response drills, both roundtable and actual should be conducted with sufficient frequency and intent to assure confidence in the event of a real emergency. A training plan should be developed by the emergency management team with input from the subject matter experts and those parties involved in response to the event type.

Site Significant Event: _____

Type of Training: _____

Responsibile Persons: _____

Participants: _____

_____

_____

Date: _____

Training Plan: _____

Summary of Drill: _____

_____

_____

Action Items Needed: _____

Review the Adequacy of the ERP

At least annually the ERP should be audited and reviewed to assure all critical events are up to date and all response plans are adequate.

Plan Section: _____

Review Date: _____

Responsible Person(s): _____

_____

Findings: _____

_____

_____

_____

Action Items: (Include responsible persons and schedule)

_____

_____

_____

_____

Time Frame to Complete: _____

Communication Needed: _____

_____

_____

_____

_____

Additional Training Needed: _____

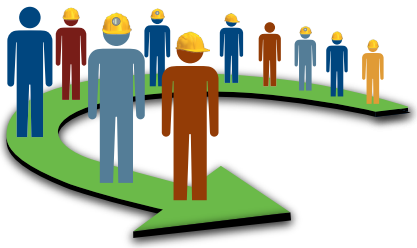
_____

_____

_____

MODULE 7

Cultural Enhancement



Safety culture is the way that safety is perceived, valued and prioritized in an organization.

No safety system will be effective without a complimentary safety and organizational culture. An operation's safety culture has a major influence on its safety performance. Whether the culture is strong and positive depends on the degree to which management understands current characteristics, has a clear idea of what the future culture should look like - based on vision, values and strategy - and has a process to actively enhance the culture. Culture change takes planning, broad involvement and patience.

Culture is driven through leadership and cascades through the entire organization. As a result, the attitudes, actions, behavior and communication of managers have the greatest impact on safety culture, but not to exclusion of workers who sustain the culture.

Creating and Enhancing Culture is the process of:

- Establishing a desired OH&S culture expectancy as part of the company's safety policy
- Identifying desired safety culture characteristics
- Assessing strengths and weaknesses
- Developing and implementing a culture improvement plan

How it works

Measuring and Assessing Culture

Culture can be measured and managed, and small changes in culture can have a long-lasting effect on safety and health performance.

Culture is measured and assessed through a confidential employee perception survey and employee interviews, where appropriate.

Key indicators of positive, supportive cultures include:

- Agreement and compliance with the company's OH&S policies and plans
- Trust among managers and workers and between workers and managers
- Fair and equitable treatment of employees
- Comfort about reporting incidents and a strong interest in understanding what caused the incident
- A constant state of vigilance regarding hazards and risk (no complacency)
- A pervasive sense of personal and group safety and health responsibility and consistent accountability to match
- Safety and health as common organizational values
- Consistently empowered workers who are confident regarding management's safety and health approach.

Companies may elect to conduct their own cultural assessment, use the **CORE**Safety assessment tool or work with an external expert. The latter approach ensures confidentiality and optimal data analysis. Once strengths and weaknesses are identified through the assessment process, a culture enhancement plan can be developed and implemented.

Flow of the Process

As stated, no successful OH&S Plan will be successful without a complementary safety and organizational culture. To assure the desired principals and behaviors are infused throughout the workplace, an organization must:

- Identify the required safety culture characteristics for the company to fulfill the 0:50:5 goals
- Conduct confidential employee survey to access perceptions of the company's safety culture, identifying strengths and weaknesses
- Develop a culture improvement plan based survey findings
- Verify culture improvement by re-conducting the culture perception survey at appropriate intervals relative to the improvement plan expectations.
- Repeat the process as necessary to ensure continuous improvement in safety culture perception.

Workbook Materials For Module 7

The safety culture expectancy should be clearly designated in the organizations OH&S policy. The culture characteristics required to promote continual improvement in safety and health and to achieve 0:50:5 goals need to be clearly identified, communicated for accountability, and included in all enhancement plans. To determine the site's safety culture employees must be confidentially surveyed, and the information assessed for strengths and weaknesses. Findings of the survey must then be addressed in the ongoing culture enhancement program.

Cultural Characteristic Identification

Responsible Persons:

Team Leader: _____ _____

Subject Experts: _____ _____

_____ _____

_____ _____

Desired Cultural Characteristics:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Confidential Employee Surveys

The safety culture questionnaire is a set of statements that respondents are asked to agree or disagree with by marking their choice on a pre-determined scale (e.g., 5-point scales, Yes/No, etc.).

Responsible Persons:

Team Leader: _____ _____

Development/Review Committee:

_____ _____

_____ _____

Survey Schedule/Date: _____

Survey Group: In House _____ Third Party _____

Survey Type: Interview _____ Questionaire _____e-Survey _____

Subject Groups:

Management	Hourly Workforce
_____	_____
_____	_____
_____	_____
_____	_____

Survey Topics:

Management	Hourly Workforce
_____	_____
_____	_____
_____	_____
_____	_____

Questions:

Based on the desired cultural characteristics, subject groups, and survey topics, develop a list of survey questions that will provide the organization an overall perception of the safety and health culture; the attitudes, actions, and behaviors, supported by the operations employees. The survey can be developed independently from within the organization, through the use of tools available from the **CORE**Safety website, or be completed by a third party expert.

Results:

Report Date: _____

Report Number: _____

Key Findings: _____

_____

Culture Improvement Plan

Responsible Persons:

Team Leader: _____ _____

Development/Review Committee:

_____ _____

_____ _____

Plan Date: _____

Plan Number: _____

Findings From Assessment:

Strength/Weakness: _____

Plan to Address: _____

_____

_____

_____

Scheduled Date: _____

Strength/Weakness: _____

Plan to Address: _____

_____

_____

_____

Scheduled Date: _____

Strength/Weakness: _____

Plan to Address: _____

_____

_____

_____

Scheduled Date: _____

Enhancement Verification – Follow Up Surveys

Responsible Persons:

Team Leader: _____ _____

Development/Review Committee:

_____ _____

_____ _____

Survey Schedule/Date: _____

Survey Group: In House _____ Third Party _____

Survey Type: Interview _____ Questionaire _____e-Survey _____

Subject Groups:

Management	Hourly Workforce
_____	_____
_____	_____
_____	_____

Survey Topics:

Management	Hourly Workforce
_____	_____
_____	_____
_____	_____

Questions:

The follow up survey may be a re-assessment using utilizing the complete original survey or maybe customized to evaluate just the key items included in the enhancement plan.

Results:

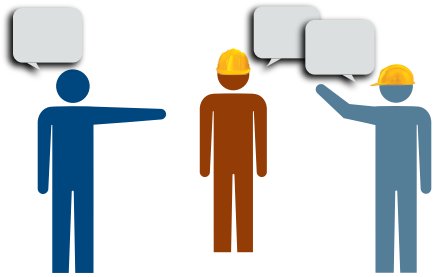
Report Date: _____

Report Number: _____

Key Findings: _____

MODULE

Collaboration and Communication



Effective communication is a key factor in safety and health management. Achieving the 0:50:5 goals will not be possible without it. One of the most important forms of communication is collaboration involving managers, miners, other workers and stakeholders in the safety decision-making and problem solving process.

Whether discussing standard operating procedures, how to minimize risk in a non-routine task, reinforcing safety behavior among two co-workers or participating in a safety meeting, communication is critical and should be included in the safety and health management process accordingly.

Collaboration and Communication is the process of:

- Fostering effective two-way communication and involvement among all employees in safety and health decision making and problem solving.
- Ensuring that all relevant safety and health information is shared through open, transparent and frequent communications.

How it works

Engaging Proper Collaboration and Communication

Two-way communication increases involvement and participation in the safety and health management processes. The goal is to have the highest percentage of any operations workforce involved in the safety and health management processes. Decision making and problem solving for safety and health should not be the exclusive right or responsibility of management.

Consultation within the workforce is one of the best ways to promote feedback regarding safety and health activities and to gain buy-in. All company employees, regardless of their title or function, should be involved in safety and health management by carrying out their designated responsibilities.

In all cases, communication should be open, transparent, mutual and as frequent as possible. Leaders should seek out every opportunity to communicate their vision and personal commitment to safety and health, as well as the appropriate way to work to achieve the 0:50:5 goals.

Flow of the Process

For a successful SHMS there must be a process to communicate the company's health and safety management system to all employees and stakeholders including a consultation method that incorporates input from employees and other important stakeholders on the development, communication and implementation of the **CORE**Safety initiative with emphasis given to improving risk management and job safety performance.

- Develop an ongoing communication process so all employees, contractors, and other stakeholders receive critical safety and health information and can provide feedback when desired
- Actively manage the visual component of the communication process (signs, posters, instructions, etc.) to ensure effectiveness and message freshness
- Develop a process to address safety and health suggestions, concerns, and complaints in a manner that protects the source from discrimination
- Consult employees regarding implementation and improvement of the SHMS. Involve them in safety and health problem solving and management to the greatest extent practical
- Develop an ongoing process to optimize the percentage of employees involved in proactive management activities that drive safety and health performance improvement
- Establish safety and health committees or teams at all appropriate levels. The team should have management and worker representatives, be trained and focus on personal involvement.
- Develop a repository for safety and health management data and other information to use for analysis and internal communication.

Workbook Materials For Module 8

Effective communication is a key factor in safety and health management. Achieving the 0:50:5 goals will not be possible without it. One of the most important forms of communication is collaboration involving managers, miners, other workers and stakeholders in the safety decision-making and problem solving process.

Whether discussing standard operating procedures, how to minimize risk in a non-routine task, reinforcing safety behavior among two co-workers or participating in a safety meeting, communication is critical and should be included in the safety and health management process accordingly.

Communication Process

Develop an ongoing communication process so all employees, contractors, and other stakeholder receive critical safety and health information and can provide feedback when desired

Responsible Persons:

Team Leader: _____ _____

Members: _____ _____

_____ _____

_____ _____

Safety & Health Information to Communicate:

Example: accident reports, incident investigations, S&H performance metrics, plan & policy changes, fatal grams, lessons learned, risk complete for each topic

_____

_____

_____

Groups(s) to Receive:

_____

_____

_____

Method to Deliver:

_____

_____

_____

Frequency of Communication:

_____

_____

_____

Method to Receive and Record Feedback:

_____

_____

_____

Responsible Review Guideline:

_____

_____

_____

Plan to Follow Up and Report Findings:

_____

_____

_____

Visual Components

Actively manage the visual component of the communication process (signs, posters, instructions, etc.) to ensure effectiveness and message freshness

Responsible Persons:

Team Leader: _____ _____

Members: _____ _____

_____ _____

_____ _____

Safety Topic:

_____

_____

_____

Visual Type (example: sign, poster, plan, notice, etc.)

_____

_____

_____

Locations to Post:

_____

_____

_____

Display Schedule/Replacement Date:

_____

_____

_____

Safety & Health Comments and Complaints

Develop a process to address safety and health suggestions, concerns, and complaints in a manner that protects the source from discrimination

Responsible Persons:

Team Leader: _____ _____

Members: _____ _____

_____ _____

_____ _____

Type: Suggestion: _____ Concern _____ Complaint _____

Reporting Method: (example: Suggestion Box, Web Site, Phone Message)

_____

_____

_____

Review Committee: _____ _____

_____ _____

_____ _____

_____ _____

Response Method:

_____

_____

_____

Response Timing:

_____

_____

_____

Safety and Health Committees and Teams

Safety teams are a platform for employees and management to work together to prevent accidents by addressing employees' concerns about health and safety, carrying out inspections and solving safety and health problems which occur in the field.

Establish safety and health committees or teams at all appropriate levels. The team should have management and worker representatives, who are appropriately trained and focus on personal involvement.

Develop an ongoing process to optimize the percentage of employees involved in proactive management activities that drive safety and health performance improvement.

Consult employees regarding implementation and improvement of the SHMS. Involve them in safety and health problem solving and management to the greatest extent practical.

Committee/Team: _____

Work Area: _____

Subject Coverage: _____

Examples: Selection of PPE, Developing safety procedures and rules, Management of change process, Internal Audits and Assessments, Review of the H&S management system, Accident Investigation, Training programs, Planned workplace and facility inspections, Developing safety meeting subjects/materials, Reviewing and making recommendations for new processes and acquisition of new equipment, Contractor consultation

Team Members:	Management	Hourly Workforce
	_____	_____
	_____	_____
	_____	_____

Team Responsibilities: _____

_____

_____

Workforce Participation: _____

_____

_____

Procedures/Guidelines:

Meeting Schedule/Date: _____

Meeting Topic: _____

Meeting Agenda: _____

Team Members:	Management	Hourly Workforce
	_____	_____
	_____	_____
	_____	_____

Report of Findings/Results

Method: _____

Schedule: _____

Responsible for Action Items: _____

Follow Up Schedule: _____

Refer to CORESafety Module 8 Resources; STANDARD OPERATING PROCEDURES, Safety Team, Representatives and Employee Involvement

MODULE

Reinforcement and Recognition

People are more effectively motivated by positive reinforcement than with negative consequences. Positive reinforcement can be formal (reward, symbolic recognition, public recognition, etc.) but it is often most effective when leaders see people doing right things.

Reinforcement and Recognition is the process of:

- Using formal and informal positive feedback and rewards.
- Recognizing and reinforcing behaviors and actions that contributes to good health and safety performance.

How it works

Using Reinforcement and Recognition

Reinforcement and recognition that is delivered in a positive manner, soon after and on a consistent basis relative to desired behaviors, is most reinforcing. Comments and actions delivered in a negative, delayed and uncertain manner are much less likely to motivate workers to pursue the desired behavior. This does not mean reprimands aren't important. Rules and procedural violations must be assessed by management and addressed in an appropriate, consistent manner.

Positive recognition reinforces safe behaviors, improves attitudes and personal value. When positive reinforcement is genuine it also reflects positively on the leader. Positive reinforcement helps create engaged workers (those aligned with the company's values and mission) and not just motivated workers (those who work hard to achieve personal gain through the company).

Flow of the Process

The practice of reinforcing and recognizing positive behavior lends great support to good health and safety performance. Celebrating success can be on an individual or collective basis. A process of consistently reinforcing positive efforts can be used as an aid to when progressive counseling is needed to address health and safety non-conformities.

- Establish a formal process to reinforce and recognize employee safety and health performance, involvement in proactive activities, and reinforcing safe behaviors, etc.
- Establish an informal, but ongoing, process that encourages all manager/leaders to conduct one-on-one interactions to build relationships and provide positive reinforcement.
- Link reinforcement and recognition to behavior optimization.

MODULE 9

Workbook Materials For Module 9

Reinforcing and recognizing positive actions and performance is a key factor in establishing an operator's emphasis toward good health and safety performance. People are motivated by positive reward and when good efforts are consistently and timely recognized, it will pay great dividends to the worker aligning with the company's mission and goals.

Positive Behavior Reinforcement and Recognition
Establish a formal process to reinforce and recognize employee safety and health performance, involvement in proactive activities, and reinforcing safe behaviors, etc.

Responsible Persons:

Team Leader: _____ _____

Members: _____ _____

_____ _____

_____ _____

Management Plan: (example: Supervisor to individual, site wide safety initiative)

_____

_____

Employee Action to Reward:
(example: H&S Performance, Near Miss Reporting, Safe Action Recommendation, etc.)

_____

_____

Recognition Timing: (example: Immediate, Monthly, Quarterly)

_____

_____

Type of Recognition:
(example: Verbal reinforcement, Pier announcement, monetary reward)

_____

_____

Method to Deliver:
(example: Informal (personal) or Formal (company recognition)))

_____

_____

Management/Leader Coaching

Establish an informal, but ongoing, process that encourages all manager/leaders to conduct one-on-one interactions to build relationships and provide positive reinforcement.

Responsible Persons:

Team Leader: _____ _____

Members: _____ _____

_____ _____

_____ _____

Coaching Process:

_____

_____

_____

_____

_____

Manager/Leader:

Name: _____

Position: _____

Work Group/Crew: _____

Coach:

Name: _____

Position: _____

Work Group/Crew: _____

Schedule:

_____

_____

_____

Process Auditing

Link reinforcement and recognition to behavior optimization

Auditing Committee:

Team Leader: _____ _____

Members: _____ _____

_____ _____

_____ _____

Auditing Process:

_____

_____

_____

Review Schedule: (Date and/or Frequency)

_____

_____

_____

_____

Subjects (Persons) to Audit:

_____

_____

_____

_____

Expected Outcomes:

_____

_____

_____

_____

MODULE

Resources and Planning

The selection, training and management of personnel are critical to achieving safety excellence, as companies depend on the behavior of individuals working within management-controlled environments and processes.

Resources and Planning is the process of:

Managing and aligning human resource activities to achieve the 0:50:5 objectives through:

- Hiring standards
- Conditions of Employment
- Employee assimilation
- Collective bargaining agreements
- Corrective discipline policy

How it works

Individual performance is critical to achieving 0:50:5 goals. That makes close alignment and mutual support between line management, human resources and safety and health professionals vital to success.

Recruiting workers with a strong personal safety value, ensuring they are free from the negative influence of drugs and alcohol (D&A), mentally and physically prepared to work, and ready and willing to work in compliance with your company's rules and procedures will greatly increase the potential for companies to achieve 0:50:5. These human resource-related activities should be actively and consistently managed to be effective.

Flow of the Process

An individual's behavior and safe work culture are key to achieving the desired safety and health performance. To ensure personnel are qualified and on board with corporate initiatives, an organization should:

- Develop hiring standards that describe the requirements of each job and verify candidates can perform the work.
- Utilize behavior-based questions in the hiring process to highlight personal safety and health values and improve judgment regarding candidates' alignment with company values.
- Formally establish working safely as a condition of employment and define the consequences of failing to do so.
- Require job candidates to submit pre-employment physicals to ensure they are physically able to perform the described job and identify any pre-existing conditions.
- Ensure alignment between collective bargaining agreements and safety and health policies, as appropriate, e.g., safe work as a condition of employment, D&A testing, health monitoring, etc.
- Develop a company-specific D&A policy and testing procedure to minimize the potential for negative consequences on safety and health performance.
- Integrate safety and health standards into succession planning
- Develop an employee assimilation process to ensure the safe and healthy integration of new employees into the work environment.

MODULE

Workbook Materials For Module 10

The selection, training and management of personnel are critical to achieving safety excellence, as companies depend on the behavior of individuals working within management-controlled environments and processes.

Individual performance is critical to achieving 0:50:5 goals. That makes close alignment and mutual support between line management, human resources and safety and health professionals vital to success.

Hiring Policy - Checklist

Develop hiring standards that describe the requirements of each job and verify candidates can perform the work.

Department Responsibilities: _____

Team Leader: _____

Members: _____ _____

_____ _____

Hiring Policy Established: Yes _____ No _____

Policy No. _____

Date: _____

Storage Location: _____

Colaborative Collective Bargaining/Labor Agreements:

(example: Safe work as condition of employment)

	Agreement	Clause	Compliant
1.	_____	_____	Yes _____ No_____
2.	_____	_____	Yes _____ No_____
3.	_____	_____	Yes _____ No_____
4.	_____	_____	Yes _____ No_____

Associated Safety & Health Policies:

(example: Drug & Alcohol Testing, Health Monitoring, Fit for Work)

	Policy	Clause	Compliant
1.	_____	_____	Yes _____ No_____
2.	_____	_____	Yes _____ No_____
3.	_____	_____	Yes _____ No_____
4.	_____	_____	Yes _____ No_____

Job Demands Included: YES _____ NO_____

Job: _____

Physical Requirements: _____

_____

_____

_____

Technical Requirements: _____

_____

_____

_____

Other Requirements: _____

_____

_____

_____

Pre-Employment Physical Required:	Yes _____	No _____
General Health Screen:	Yes _____	No _____
Fit for Work Exercise:	Yes _____	No _____
D & A Screen:	Yes _____	No _____
List Other		
_____	Yes _____	No _____
_____	Yes _____	No _____
_____	Yes _____	No _____

Employment Questionaire Completed:	Yes _____	No _____
Response Ranking:	5 _____	
	4 _____	
	3 _____	
	2 _____	
	1 _____	

Pre-Hire Behavioral Questionnaire – Guidelines

Utilize behavior-based questions in the hiring process to highlight personal safety and health values and to improve judgment regarding a candidates' alignment with company values.

Department Responsibilities: _____

Team Leader: _____

Members: _____ _____

_____ _____

Questionaire:

Objective: _____

_____

_____

_____

Source:

Inter Company _____

Outsource _____

Subjects: _____

_____

_____

_____

Ranking Criteria:

	Qualifying Expectation	
Rank	Health and Safety	Company Values
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Safe Work Policy

Establish working safely as a condition of employment and define the consequences of failing to do so.

Department Responsibilities: _____

Team Leader: _____

Members: _____ _____

_____ _____

Policy Administration:

Policy Number _____

Date _____

Sign of Responsibility _____

Storage Location _____

Policy Standards/Expectations: _____

_____

_____

_____

Violations of Policy: _____

_____

_____

_____

Corrective Action Plan:

Violation	Occurance	Corrective Action
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

MODULE

Drug and Alcohol Policy

Establish working safely as a condition of employment and define the consequences of failing to do so.

Department Responsibilities: _____

Team Leader: _____

Members: _____ _____

_____ _____

Policy Administration:

Policy Number _____

Date _____

Sign of Responsibility _____

Storage Location _____

Policy Standards/Expectations: _____

_____

_____

Screening Requirements: _____

_____

_____

Test Administrator:

Facility _____

Location _____

Contact Person _____

Contact Info _____

Phone _____

Email _____

Corrective Action Plan:

Violation	Occurance	Corrective Action
_____	_____	_____
_____	_____	_____
_____	_____	_____

New Employee Integration into the Working Environment

Develop an employee assimilation process to ensure the safe and healthy integration of the new employees into the working environment.

Department Responsibilities: _____

Team Leader: _____

Members: _____ _____

_____ _____

Intergration Process:

Objective: _____

_____

_____

_____

Integration Procedures: (**CORE**Safety training, working with experienced crews, etc.)

Office Training: _____

_____

On the Job Training: _____

_____

Job Integration Plan: _____

_____

Program Administration:

Documentation Required: _____

_____

_____

Document Storage Location: _____

Integration Process Schedule: _____

Sign Off Responsibility: _____

MODULE

Change Management

Changes that occur in the operation or related facilities should not introduce new hazards, negatively change the risk rating of existing hazards or degrade controls. This is accomplished through a process called "change management."

Once hazards are identified, risks assessed and prioritized, and controls implemented, management-coordinating with its workforce-systematically looks for and controls change that can increase unacceptable risk. Change that results in unacceptable risk should be managed in the same manner as any other unacceptable hazard/risk, through appropriate and effective controls.

Change Management is the process of:

Identifying changes in the organization and at the operation that may introduce new risk or increase unacceptable risk by proactively looking for and controlling change at every level of the organization and across functional areas, including emergency management.

How it works

Fundamental to effective change management is training to ensure all affected personnel have a clear understanding of what "change" requires inclusion in the management process. The change management process should apply to every functional area and every level of the organization.

The management process should include changes that are:

- Planned or unplanned
- Temporary
- Incremental or permanent

And affect the operation's plan and/or the facilities and its:

- Processes
- Systems
- Procedures
- Equipment
- Products
- Material
- Organization
- Personnel

The change management process should include a provision to address emergencies where the full management of change is likely to be unrealistic. As such, management of change and emergency management should be closely coordinated, with the goal of ensuring emergency procedures exercised in response to a crisis or emergency do not introduce additional and unacceptable risk.

Flow of the Process

Procedures to establish the process for effectively managing change within the operation or facilities:

- Define change requiring management review. Communicate this process to all affected employees, contractors and other stakeholders.
- Develop a change management procedure that defines the "who, what, when and how" for the reviews. Define who is authorized to approve change actions.
- Ensure that the procedure includes provision to verify that change management actions have been completed and that they do not significantly result in new, negative risk.
- Integrate change management actions into the safety and health communication process to ensure all potentially affected parties are knowledgeable.
- Document change management decisions for tracking and verification purposes and for future reference.

Workbook Materials For Module 11

Change management involves identifying changes in the organization and at the operation that may introduce new risk or increase unacceptable risk by proactively looking for and controlling change at every level of the organization and across functional areas, including emergency management.

Fundamental to effective change management is training to ensure all affected personnel have a clear understanding of what “change” requires inclusion in the management process. The change management process should apply to every functional area and every level of the organization.

Change Management Review Process

Change Management Process Manager:

Name: _____

Title: _____

Department: _____

Identify the Change:

Change Initiator

Name: _____

Title: _____

Department: _____

Change Recommended

_____

_____

_____

Area/Department of Required Change:

- Facilities and Equipment _____
- Processes _____
- Operating Procedures _____
- Design and Construction _____
- Maintenance Procedures _____
- Materials Used _____
- Consumables Used _____
- Organization Structure/Responsibilities _____
- Personnel Changes, Training, or Competencies _____
- Individual Roles or Responsibilities _____
- Mine Design/Planning _____
- Contractor Administration _____
- Regulatory/Statutory Regulations _____
- Other _____ _____

Business Area Affected:

- Health and Safety _____
- Environmental and/or Social Responsibility _____
- Business Continuity _____

Details of Requested Change: _____

_____

Impacts of Proposed Change: _____

_____

Project Administration:

Project Name _____

Date Initiated _____

Date Required _____

Policies/Regulations Involved _____

_____

Documentation Required _____

_____

Assess, Authorize and Verify Change:

Change Assessor:

Name: _____

Title: _____

Department: _____

Change Authorizor:

Name: _____

Title: _____

Department: _____

Change Verifier:

Name: _____

Title: _____

Department: _____

Assess the Risk – Identify & Evaluate Risks

Using the tools provided in Module 4, Fatality Prevention/Risk Management, conduct a risk assessment of the change.

Risk: _____

_____

Likelihood (A-E): _____ Consequence (1-5): _____

Ranking:

Extreme: 1A-D, 2A-C, 3A _____

High: 1E, 2D, 3 B-C, 4 A-B, 5A _____

Medium: 2E, 3 D-E, 4C, 5B _____

Low: 4 D-E, 5 C-E _____

Assess, Authorize and Verify Change (cont.):

Mitigating Controls: _____

_____

_____

Residual Risk Rank: _____

Test/Trial Required: Yes _____ No _____

Date: _____

Duration: _____

Findings: _____

_____

Authoriziation Required: Yes _____ No _____

Audit Schedule:

Date: _____

Frequency: _____

Authorize the Change:

Change Management Process Required: Yes _____ No _____

Sign Off Required:

Name: _____

Department: _____

Received: Yes _____ No _____

Name: _____

Department: _____

Received: Yes _____ No _____

Name: _____

Department: _____

Received: Yes _____ No _____

Assess, Authorize and Verify Change (cont.):

Documentation Required:

Document Name: _____

Completed: Yes _____ No _____

Document Name: _____

Completed: Yes _____ No _____

Document Name: _____

Completed: Yes _____ No _____

Change Management Plan:

Responsible Person: _____

Department: _____

Implementation Schedule: _____

_____

Subject Experts/Participants:

_____ _____

_____ _____

_____ _____

Implementation Plan: _____

_____

_____

Training Required: Yes _____ No _____

Responsible Person: _____

Subject(s) to Cover: _____

_____

_____

Persons/Departments to Train: _____

_____

Schedule: _____

Training Plan/Method: _____

_____

_____

Assess, Authorize and Verify Change (cont.):

Communication/Info Sharing Required: Yes _____ No _____

Responsible Person: _____

Subject(s) to Cover: _____

_____

Persons/Departments: _____

_____

Schedule: _____

Communication Method: _____

_____

Verify the Change:

Change Complete: Yes _____ No _____

Change Management Plan Followed: Yes _____ No _____

Risk Mitigating Controls in Place: Yes _____ No _____

Training Complete: Yes _____ No _____

Communications Complete: Yes _____ No _____

Change Evaluated and Audited against Additional Risk: Yes _____ No _____

Findings: _____

_____

_____

Continued or Future Evaluations: Yes _____ No _____

Schedule: _____

Description: _____

_____

Responsible Person/Department: _____

Documentation Complete: Yes _____ No _____

Sign Offs Complete: Yes _____ No _____

Name: _____

Title: _____

Department: _____

MODULE

Work Procedures and Permits

Safe Work Procedures and Permits to work are two main elements of the Health and Safety Management System.

Safe work procedures are a specified way to carry out an activity or a work process. Safe work procedures should be written and may include video-based instructions that outline the steps necessary to complete routine and some non-routine work tasks in a safe manner. They are generated from risk assessment processes such as systematic job and task SJT. (See Module 4 Fatality Prevention / Risk Management.) The keys to making work procedures effective are:

- Use workers who do the work to assist in procedure development
- Use the procedures for training, particularly for on-the-job training
- Ensure front line supervisors and/or managers audit work against the procedures

Permits to work offer a more controlled procedure for tasks that are either high risk or mandated by regulation to require a permit.

Misuse or avoidance of safe work procedures and permits should be addressed through corrective discipline. Conversely, adherence to safe work procedures and permits should be recognized with positive reinforcement.

Work Procedures and Permits is the process of:

Integrating safety and health into operations and maintenance by:

- Organizing and conducting work in a predictable manner.
- Specifying ways to carry out an activity or process.
- Using more controlled procedures for those activities or processes that are high risk or require a permit.

How it works

The Role of Line and Senior Management

Because line and senior management have the greatest ability and resources to prevent incidents, companies with world class safety and health performance often say “safety is a line function.” Line and senior management supervise and manage workers who are generally at greatest risk; they have the largest impact over equipment and the facility environments, and they control the resources necessary to make the safety and health management systems (SHMS) work.

One of the most effective points of focus for line management in the **CORE**Safety SHMS is the integration of safety and health into operations and maintenance activities. Achieving the 0:50:5 goal means work tasks are conducted in an organized and predictable manner. And when they are not predictable, as with non-routine work, there should be procedures to assess the risk and procedures to make the work task as controlled and predictable as possible.

If the safe outcome of the task is uncertain, it should not be attempted until there is certainty.

Examples include, but are not limited to: hot work, confined space entry, high voltage electrical work, lifting and rigging, energy isolation, surface trenching, handling explosives and shot-firing, mobile equipment operation, mobile equipment maintenance, ground control, methane-rich environments, mining in seismically-unstable areas, among others.

Flow of the Process

- Standard operating procedures (SOPs) are developed for routine and repeated non-routine work based on work procedures and outcomes of systematic job and task (SJT) analyses.
- SOPs are used as the basis for on-the-job training and audited against by front line supervisor or managers. Competency verifications are also based on SOPs.
- General and specialized S&H rules should be developed, communicated to all employees and contractors and enforced through a fair and equitable disciplinary policy.
- Risk-specific and/or general work permit programs should cover all high risk work (whether routine or non-routine) and include sign-off authority and operational limitations.
- Protocols (more detailed SOPs) should be developed for high-risk tasks that warrant the highest level of control owing to the difficulty in minimizing risk and high consequences.
- Ensure safe work procedures and permit to work is fully integrated with Module 4.
- Ensure all contractors and vendors are trained on and comply with the work permit and safe work procedure requirements.

Workbook Materials For Module 12

Safe Work Procedures & Work Permits

Safe work procedures should be developed for those tasks where the absence of a permit or procedure could be detrimental to safety and health.

Standard Operating Procedures (SOPs): May also be referred to as SJP, JHA, JSA, etc. The following outlines the standard steps to consider when preparing an SOP

Purpose: A brief description of the task and need for an SOP.

_____

_____

Scope: A statement that outlines what is to be covered by the SOP

_____

_____

Definitions: Terms, acronyms, abbreviations should be defined avoiding any misinterpretation.

_____

_____

Task Risk Ranking: High _____ Moderate _____ Low _____

Task Type: Routine _____ Non Routine _____

Work Groups/Classifications: _____

_____

Responsibilities: A summary of the roles listed in the procedure

_____

_____

Emergency Preparation: Communication, Evacuation, Muster Areas, EMS Services

_____

_____

Special PPE Required: _____

_____

_____

Specific Procedure: This section must include sufficient details of the task and be clearly expressed, providing enough information to enable a trained person to train others. Task risk assessments (Module 4) should be referred to.

Basic Job Steps	Potential Hazards & Consequences	Controls to Eliminate or Reduce Hazards	Equipment, Tools, PPE

Training Required:

Persons: _____

Methods: _____

Schedules: _____

Forms/Templates:

Form Required: _____

Form I.D.: _____

Form Description: _____

_____

_____

Review Responsibilities: _____

Person: _____

Position: _____

Department: _____

Retention: _____

Storage Location: _____

Post Job Debriefing: _____

_____

_____

_____

Contractor Consideration:

Contractor: _____

Work Area: _____

Training Required: _____

_____

Management Review:

Name: _____

Position: _____

Department: _____

SOP Audit: _____

Responsible Department: _____

Schedule: _____

Work Permit:

Risk-specific work permit programs should cover all high risk work (whether routine or non-routine) and include sign-off authority and operational limitations. Protocols (more detailed SOPs) should be developed for high-risk tasks that warrant the highest level of control owing to the difficulty in minimizing risk and high consequences.

Purpose: A brief description of the task and need for a work permit.

_____

_____

_____

Scope: A statement that outlines what is to be covered.

_____

_____

_____

Definitions: Terms, acronyms, abbreviations should be defined avoiding any misinterpretation.

_____

_____

_____

Risk Identification:

Global Significant Risk: _____

Site Significant Risk: _____

Risk Ranking: _____

Residual Risk with Controls in Place: _____

Standard Operating Procedure:

Title: _____

Number: _____

Storage/File Location: _____

Special Training Required:

Persons: _____

Methods: _____

Schedules: _____

Forms/Templates:

Form Required: _____

Form I.D.: _____

Form Description: _____

_____

Review Responsibilities: _____

Person: _____

Position: _____

Department: _____

Retention: _____

Storage Location: _____

Pre-Work Authorization:

Persons: _____

Position: _____

Department: _____

Post Work Signoff:

Persons: _____

Position: _____

Department: _____

MODULE

Occupational Health

Occupational health should be treated on par with worker safety. The only difference between a worker injured on the job and one who is impaired from an occupational disease is that one occurs very rapidly, while the other occurs over a period of time. Strong performance on occupational health is accomplished by anticipating, recognizing, evaluating and controlling occupational health hazards leading to illness.

Accounting for Occupational Health is the process of:

- Treating employee's health on par with personal safety by;
  - Anticipating, recognizing, evaluating and controlling occupational health hazards leading to illness.
  - Applying appropriate new technologies, with an emphasis on exposure assessment and medical surveillance.

How it works

Companies should conduct periodic exposure assessment when employees face potential overexposure to hazards (noise, dust, welding fumes, radiation, chemicals, etc.), or when deemed appropriate by a professional industrial hygienist.

An exposure assessment program includes two factors:

- Compliance with regulatory requirements for exposure monitoring; and
- Determinations on the need for exposure controls and follow-up medical monitoring to guard against lasting effects from the exposure(s).

Exposure assessment should follow validated sampling methodologies and accepted industrial hygiene practices. New technology should be applied to serve as a mechanism to modify employee behavior relative to exposure to health hazards.

Flow of the Process

In establishing a program to anticipate, recognize, evaluate and control occupational health hazards leading to illness, an operation should;

- Conduct representative qualitative and quantitative risk (exposure) assessments to characterize occupational health hazards and associated risks.
- Determine the degree of control necessary to address occupational health hazards and apply ”hierarchy of control” accordingly.
- Ensure exposure assessment results are communicated to affected employees in a timely and understandable way.
- For “over exposures,” determine the need for temporary or permanent health monitoring and conduct monitoring using appropriate medical standards.
- Ensure accurate protection of employee medical confidentiality for non-occupational information, e.g., HIPPA.
- Provide a mechanism to assess employee general health risks that are relevant to the occupational setting, e.g., blood pressure, blood sugar, weight, flexibility, strength, etc.
- Provide wellness education for employees including mechanisms that can be pursued to improve general health risk factors both on and off the job.
- Document occupational health management data for compliance, analysis and verification purposes and for future reference.

Workbook Materials For Module 13

Occupational health hazards and risks should be considered when assessing the task fatality prevention/risk management of Module 4. For each task, health risk should be considered equally with the safety risk and controls determined and implemented to mitigate any health effects. Exposure assessments and medical surveillance should be considered as controls.

Occupational Health Risk Assessment

Departmental Responsibility:

Department: _____

Team Leader: _____

Members: _____ _____

_____ _____

_____ _____

Occupational Health Hazards and Risk Assessment:

Hazards may include, but are not limited to: dust, welding fumes and other metallic particulates, noise, acid mists, organic vapors and solvents, ionizing and non-ionizing radiation, diesel particulates, toxic gases, asbestos soluble oil, synthetic mineral fibers, microbiological agents in mold, heat stress, illumination, ergonomic stressors, etc.

Identify all occupational health hazards for the site and relate the exposure as it presents a risk to the task assessments in the Module 4 risk register. Assure controls are identified to eliminate or mitigate any immediate or long term effect.

Health Hazard: _____

Exposure Risk: _____

Site Tasks Subject to Risk: _____

Occupations Exposed to Risk: _____

Is health hazard considered with the task risk management: Yes _____ No _____

For each task with a NO answer, return to the task safety risk register and add the health hazard. Proceed, determining the action items required eliminating or reducing to acceptable levels the health hazard exposure. In order to take advantage of developing technology, special consideration should be given to the audit frequency of the controls related to health hazards.

Exposure Levels, Assessment and Surveillance:

Ensure exposure assessment results are communicated to affected employees in a timely and understandable way. For "over exposures," determine the need for temporary or permanent health monitoring and conduct monitoring using appropriate medical standards.

Health Hazard: _____

Maximum Exposure Level:

Regulatory: _____

Controlling Agency: _____

Statute or Policy: _____

Corporate: _____

Policy: _____

Measuring Frequency:

Regulatory: _____

Controlling Agency: _____

Statute or Policy: _____

Corporate: _____

Policy: _____

Measuring Methods:

Regulatory: _____

Controlling Agency: _____

Statute or Policy: _____

Corporate: _____

Policy: _____

Instrucmentation Required:

Regulatory: _____

Controlling Agency: _____

Statute or Policy: _____

Corporate: _____

Policy: _____

Reporting Methods:

Regulatory: _____

Controlling Agency: _____

Statute or Policy: _____

Corporate: _____

Policy: _____

Over Exposure Considerations/Requirements:

Action Level: _____

Additional Controls Required:

By Regulation: _____

By Policy: _____

Additional Exposure Monitoring Required:

By Regulation: _____

Frequency: _____

By Policy: _____

Frequency: _____

Medical Surveillance Required:

By Regulation: _____

Frequency: _____

By Policy: _____

Frequency: _____

Employee Health and Wellness Programs:

Provide a mechanism to assess employee general health risks that are relevant to the occupational setting, e.g., blood pressure, blood sugar, weight, flexibility, strength, etc. along with providing wellness education for employees including mechanisms that can be pursued to improve general health risk factors both on and off the job. Document occupational health management data for compliance, analysis and verification purposes and for future reference.

Employee Examinations: (Complete for each type)

Type: _____

(Ex. Physical, Wellness, Vitals)

Location: _____

(Consider health assessment programs at the work place)

Service Provider: _____

Frequency: _____

Health Risks Monitored: _____

_____

_____

_____

Action plan for at risk findings: _____

_____

_____

_____

Health Status Documentation:

Administrator: _____

Agency: _____

Contact No.: _____

Health Enrichment and Education

Worksite Programs/Screenings:

Subject: _____

Location: _____

Frequency: _____

Administrator: _____

Worksite Audio/Visual Notices:

Subject: _____

Display Method: _____

(Poster, TV Monitor, etc.)

Location: _____

Corporate Sponsored Health Programs:

Program: _____

(Weightwatchers, Athletic Club Memberships, Medical Facilities)

Location: _____

Co-Pays: _____

Frequency: _____

MODULE

Incident Reporting and Investigation

Integrity in reporting and timely investigation are critical steps for the prevention of future occurrences. Laws and regulations result in two incident categories that mandate different types of reporting:

Incidents reportable to regulatory authorities: All safety and health incident investigations that are mandated to be reported should be promptly examined to identify means to prevent reoccurrence and communicated to the respective regulatory authorities.

Incidents that are non-reportable to regulatory authorities: Non-reportable safety and health incidents should also be investigated, analyzed and corrective actions developed and integrated into the safety and health management system. Such incidents include:

- Near miss events
- Property damage
- Operational, maintenance or process integrity incidents that could have a negative outcome.

Incident Reporting and Investigation is the process of:

- Understanding and reporting of recordable/reportable incidents.
- Investigating all incidents, including relevant near misses, to establish root cause, as appropriate.
- Capturing lessons learned/root cause data for management review and communication to employees.

How it works

The Role of Reporting and Investigations

Incidents cannot be investigated if they are not reported.

All personnel should be aware of what a reportable incident is within each company and as defined by regulatory requirements and company policy. All personnel should also understand the expectation to report an incident to management in a timely manner.

The quality of any root cause analysis is directly related to the quality of the incident investigation. Companies should ensure personnel are adequately trained to conduct required investigations or maintain close coordination with external resources capable of doing so. Incident investigations should focus on fact-finding—not fault-finding—with incident investigations focusing on root cause.

Flow of the Process

- Ensure all personnel are trained and understand the company's and regulatory authority's definition of a recordable/reportable incident and their obligation to comply.
- Investigate all incidents, including near misses, to a level of detail appropriate to their maximum likely outcome. All full investigations should reach root cause.
- Ensure that a sufficient percentage of company personnel, representing all company functions, are trained in effective incident investigation and root cause analysis.
- Develop or adopt a root cause analysis procedure that is integrated with the structure of the SHMS, i.e., root causes should relate to the SHMS, as a minimum.
- Capture the lessons learned and ensure they are communicated to all personnel with a need to know.
- Compile root cause data and forward to management for their review of the SHMS (See Module 19 Engineering and Construction).

MODULE 14

Workbook Materials For Module 14

Incidents cannot be investigated if they are not reported. To prevent the recurrence of accidents and incidents, operations should ensure thorough and effective investigations take place and corrective actions are implemented. The procedure should apply to all functional areas at the site and include employees, vendors, visitors, and contractors. Incidents of consideration should include:

- Reportable health and safety accidents and events
- Near miss events
- Property damage
- Operational, maintenance or process integrity incidents that could have negative outcome. (issues that affect business continuity)

Reporting and Investigation Guideline

Departmental Responsibility:

Department: _____

Team Leader: _____

Members: _____ _____

_____ _____

_____ _____

Incident Classification:

Reportable to Regulatory Agencies:

Incident: (List each and Explain)

_____ _____

_____

_____

Near Miss Health and Safety:

Incident: (List each and Explain)

_____ _____

_____

_____

Property Damage:

Incident: (List each and Explain)

_____ _____

_____

_____

Operational, maintenance, or process integrity affecting:

Incident: (List each and Explain)

_____ _____

_____

_____

Incident Reporting:

Reporting Policy: _____

_____

Policy No.: _____

Incident: _____

_____

Incident Classification:

Reportable: _____

Near Miss: _____

Property Damage: _____

Business Continuity: _____

Agency/Department/Person(s) to Notify:

_____

_____

_____

Notification Procedures: (call, form, person, etc.)

Method: _____

Timing: _____

Responsible Person: _____

Info Required: _____

_____

_____

Incident Response:

Incident: _____

_____

_____

Affected Area Procedures: (refer to ERP Plan)

Area to be preserved: Yes _____ No _____

Area to be evacuated: Yes _____ No _____

Release Authorization:

Person: _____

Responsibility: _____

Incident Investigation:

Incident Description: _____

Date & Time: _____

Reporting Person: _____

Incident Status:

Reportable: Yes _____ No _____

Agency: _____

Incident Classification:

- Fatality: _____
- Lost Time Injury/Illness: _____
- Medical Treatment: _____
- First Aid: _____
- Illness: _____
- Property Damage: _____
- Process Loss: _____

Incident Consequence:

- Actual Loss or Harm: _____
- Potential Loss or Harm: _____

Level of Consequence:

- Catastrophic: _____
- Major:_____
- Moderate: _____
- Minor:_____
- Insignificant: _____

Personnel Required:

Affected Person(s): _____

Witnesses: _____

Supervisor: _____

Health & Safety Rep: _____

Labor Rep: _____

EMS Responder: _____

Department Head/Rep: _____

Other Management: _____

_____

_____

Review Committee: _____

_____

_____

Management Review:

Title/Position: _____

Title/Position: _____

Title/Position: _____

Title/Position: _____

Pertinent Incident Information:

(Should consider but not be limited to)

Description of Incident: _____

_____

_____

Identify Sources of Evidence: _____

_____

_____

Persons to Interview: _____

_____

_____

Vehicles/Equipment Involved: _____

_____

_____

Documents/Records to Review: _____

_____

_____

Witness Interviews:

Person: _____

Job Classification: _____

Job at time of incident: _____

Interview Location: _____

Interviewer: _____

Date/Time: _____

Statement: _____

Attach Pictures or Drawings: _____

Incident Causes:

Type of Contact: _____

Existing Acts and Conditions: _____

_____

_____

Basic cause allowing acts and conditions to exist: _____

(Complete for each) _____

_____

_____

Notifications:

Timing: Immediate ___ During Investigation____ Investigation Complete ___

Information: _____

Responsible Person: _____

Deliver to: _____

Methods: _____

Schedule: _____

Action: _____

_____

Temporary/Permanent: _____

Timing: _____

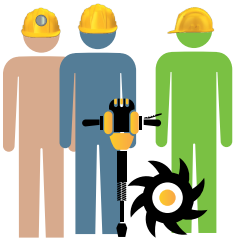
Responsible Person(s): _____

Audit for Adequacy: _____

Schedule: _____

MODULE

Behavior Optimization



Human behavior is an integral part of mine safety and health. Individuals often take unnecessary shortcuts or expose themselves to unnecessary risks. Mining companies that work to reduce exposures to risk by encouraging their employees to do the right thing generally have fewer and less severe injuries.

Behavior Optimization by Minimizing Unsafe Behavior is the process of:

- Educating all employees on the causes of safe and unsafe behavior.
- Developing an observation and feedback process.
- Emphasizing how to control behavior and intervene with co-workers.

How it works

Unsafe behaviors are a key contributing factor in many mining incidents. However, behavior is a consequence and not a cause. We now know attitudes and behaviors are both measurable and manageable.

It is important to optimize behavior because carefully designed and effectively implemented work procedures that are not complied with still have substantial potential for increased injury and incidents

What We Know about Behavior

Most experts believe human behavior (anything that is an observable action) is primarily controlled by the "ABC model" of Activator—Behavior—Consequence.

Activators: People behave the way they do because they are activated to do so. Activators can be someone's voice, a phone ringing, a written to do list, memory, training, etc.. Activators can be either conscious or subconscious.

Behavior is a reflection of our knowledge, training and competence and can be intentional or unintentional. Individuals are most often motivated to repeat a behavior, e.g., driving within the speed limits, by the consequences or enforcements experienced from previous behaviors.

Behaviors are also affected by people's attitudes about risk. This knowledge helps us to minimize unsafe behavior by making workers aware of why they behave the way they do, what is a safe and unsafe behavior, and what can be done to minimize unsafe and encourage safe behaviors.

Flow of the Process

- Educate employees regarding the causes of safe and unsafe behavior, e.g., the ABC model, how to control their own behavior and when and how to intervene with co-workers.
- Develop a workplace observation and feedback process. The process should be confidential and voluntary, but collect observation data for analysis.
- Apply the ABC model beyond observation and feedback to include an emphasis on general safety and health activators and consequences.
- Integrate behavior optimization with related SHMS Modules: 12 (Work Procedures), 14 (Incident reporting), 8 (Collaboration and Communication), 7 (Culture Enhancement), etc.
- Ensure adequate focus on the quality of observations and feedback.

Workbook Materials For Module 15

Behavior Optimization is a system for maximizing positive actions and minimizing negative or unsafe actions.

Optimizing behavior to reduce employee exposure to risk and improve safety requires strong leadership, management commitment, and a positive safety culture as prerequisites.

Behavior Optimization Techniques

Employee Education and Training:

Responsible Department: _____

Team Leader: _____

Members: _____ _____

_____ _____

_____ _____

Outside Resources: _____

_____

Participating Employees/Work Groups: _____

_____

_____

Training Topics: (e.g. the ABC model, how to control one's own behavior, when to intervene)

_____

_____

_____

Training Schedule:

_____

_____

_____

Behavior Observation

Behavior observation and feedback is a structured process that commonly relies on trained observer's conducting observations of their co-workers as they perform a task. The focus is on reinforcing the co-workers safe behaviors and/or encouraging them to avoid at-risk behaviors in the future.

Observation Planning:

Job or Task: _____

Observer: _____

SOP/SJP Available: _____

Identified Significant Risk: _____

_____

_____

Implemented Controls: _____

_____

_____

Observation Plan: _____

_____

_____

Scheduled Date: _____

Behavior Observation (cont.)

Observing:

Date: _____

Employee Classification: _____

Training Delivered: _____

Performance Observation:

Was Safe Behavior Practiced: Yes _____ No _____

Comments: _____

_____

_____

Was Safe Behavior Difficult: Yes _____ No _____

Comments: _____

_____

_____

Action Needed: _____

_____

Was Safe Behavior Impossible: Yes _____ No _____

Comments: _____

_____

_____

Action Needed: _____

_____

Feedback:

During Observation: _____

_____

After Observation: _____

_____

Additional Planned: _____

_____

Schedule: _____

Behavior Observation (cont.)

Action Required:

Positive Reinforcement: _____
- Timing: _____
- Method: _____
- Responsible Person: _____

Negative Reinforcement: _____
- Timing: _____
- Method: _____
- Responsible Person: _____

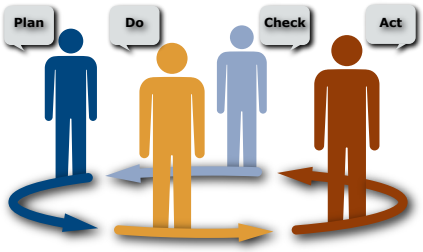
Corrective Discipline: _____
- Condition History: _____
- Timing: _____
- Method: _____
- Responsible Person: _____

Change of Plan/Policy: _____
- Plan/Policy: _____
- Reason for Change: _____
- Timing: _____
- Method: _____
- Responsible Person: _____

Change of SOP/SJP: _____
- SOP/SJP: _____
- Reason for Change: _____
- Timing: _____
- Method: _____
- Responsible Person: _____

MODULE 6

Safety and Health Management Assurance



Non-conformance with statutory and regulatory regulations can have a significant effect on an operation. Regulatory agencies can enforce work stoppages and levy substantial monetary penalties. While significant efforts are devoted to maintaining compliance, the resources required to address a pattern of non-conformance can become even more substantial and at the same time, distract from the positive and proactive efforts.

Safety and Health Management Assurance is the process of:

- Establishing a procedure to assess compliance with applicable legal requirements.
- Maintaining current information.
- Developing an improvement cycle that is integrated with the company's safety and health management system.

How it works

Operations should be in full compliance with statutory and regulatory requirements to ensure value-added regulations are leveraged. This can be best accomplished by integrating an improvement cycle within the company's safety and health management system and applying the Plan-Do-Check-Act process to each regulation. Each requirement should have someone responsible for ensuring the requirements have been met and are working as designed on an ongoing basis. This feedback is essential for consistent compliance.

Flow of the Process

- Establish a procedure to assess compliance with applicable legal and other S&H management requirements and keep this information current.
- Compliance with regulations should be managed through the Plan-Do-Check-Act improvement cycle and should be integrated with the company SHMS.

Workbook Materials For Module 16

Continued compliance toward meeting the 0:50:5 goals can be achieved by developing processes to measure performance against applicable legal requirements and by developing an improvement cycle that is integrated with the company's safety and health management system.

Compliance Assessment

Measurement Tools and Corrective Planning:

Violations/Citations:

Record and trend violation history identifying patterns of non-compliance

Period: _____

Standard: _____

Number Issued: _____

Compliant with Expectations: Yes _____ No _____

Inspections:

Identify hazards through regular examination of the workplace and equipment

Inspection Type:

Pre-task Workplace Exam: _____

Pre-Op Equipment Inspection: _____

General Inspection: _____

Person Inspecting: _____

Date: _____

Description of Condition: _____

_____

Compliant with Regulation: Yes _____ No _____

Compliant with Policy: Yes _____ No _____

Evaluations and Audits

Establish and effective system to periodically evaluate compliance to applicable legal and company policy requirements.

Audit Type:

Internal: _____

Third Party: _____

Responsible Department: _____

Audit Leader: _____

Audit Team:	Person	Department
	_____	_____
	_____	_____
	_____	_____

Management Review: _____

Audit Objective: _____

_____

Schedule/Frequency: _____

_____

Audit Results: _____

_____

Compliant with Regulation: Yes _____ No _____

Compliant with Policy: Yes _____ No _____

If assessment results are non-compliant with expectations in any measurement category, improvement efforts should be initiated using the PLAN-DO-CHECK-ACT process

Improvement Management Process:

Responsibilities:

		Person	Department
PLAN	Corrective Action Plan:	_____	_____
DO	Plan Implementation:	_____	_____
CHECK	Evaluation:	_____	_____
ACT	Action Items:	_____	_____

Corrective Action Plan:

Findings of Non-Compliant Issues: _____

_____

Targets to reduce non conformities: _____

_____

Plan to Implement: _____

_____

Schedule: _____

Crews/Employees: _____

Plan Implementation:

Assigned Responsibilities: _____

_____

Schedule: _____

_____

Equipment/Materials: _____

_____

Crews/Employees: _____

_____

Follow Up/Feedback: _____

_____

Evaluation:

Observation Findings: _____

Feedback Discussion: _____

Schedule: _____

Participants: _____

Performance Reassessment Results: _____

Compliant with Expectations: Yes _____ No _____

Action Items:

What Worked: _____

_____

Actions to Improve: _____

_____

Roll Out to Other Areas: _____

_____

What Didn't Work: _____

_____

Where They Needed: Yes _____ No _____

If Yes, Actions to Improve: _____

_____

If No, Discontinue: _____

_____

Other Action Required: _____

_____

MODULE 17

Assurance

Similar to the statutory and regulatory assurance process of Module 16, a system should be in place to provide stakeholders assurance that the safety and health management system is effective and adequate for the operation. The plan should be reviewed periodically taking into account changes in operations, personnel, hazards and risks, and the environment. Any non-conformities should be addressed in a timely manner.

Assurance is the process of:

- Implementing a process to assure internal and external stakeholders of the adequate structure, fitness and effectiveness of the safety and health management system.
- Ensuring management is using assurance information to determine how to improve the safety and health management system.
- Providing for corrective action and continual improvement based on senior management direction.

How it works

It is necessary to periodically assess implementation of and conformance with the expectations of the safety and health management system (SHMS) to assure an adequate structure exists to analyze the fitness and effectiveness of the SHMS. This process should be managed by senior management and may involve both internal and external audits and assessments. Where nonconformance is identified, corrective action should be taken to ensure continual improvement in both SHMS effectiveness and the resulting safety and health performance.

Flow of the Process

- Develop a process to measure system and S&H management performance through the use of lagging and leading indicators.
- Ensure senior management participates in the performance assurance process to optimize transparency and ensure there are adequate resources to facilitate system improvement.
- Non-conformance against the SHMS should be addressed with appropriate actions to correct the non-conformance.
- Internal audits should be scheduled in advance and conducted by personnel with adequate experience and knowledge of SHMS audit methods and processes.
- Routine audits (and periodic external audits) should be conducted by a competent third party at an interval sufficient to ensure continuous improvement.

Workbook Materials For Module 17

Health & Safety Management Plan - Auditing & Evaluation

It is critical to periodically measure performance against the SHMS goals and objectives. Evaluations can be completed through both internal and third party audits. An audit can include one section of the plan or a review of the entire system. It is also critical that the results of the audits are reviewed by management and where there are non-conformities, action plans are developed to better address any deficiencies.

Auditing and Evaluation Process:

Audit Type:

Internal: _____

External: (Third Party) _____

Organization: _____

Contact: _____

Responsibilities:

Department: _____

Senior Manager: _____ Title: _____

Audit Team	Person	Department	Position
Planning - Lead	_____	_____	_____
	_____	_____	_____
Audit - Lead	_____	_____	_____
	_____	_____	_____
Reporting - Lead	_____	_____	_____
	_____	_____	_____
Action Plan - Lead	_____	_____	_____
	_____	_____	_____

Schedule: _____

HSMP Section or Overall Review: _____

Audit Measurements against Standards and Goals:

Performance measurements should include but not be limited to the following categories

Plan Objectives: _____

_____

_____

Data and Statistics: _____

(Quantitative) _____

Compliance & Behavior: _____

(Qualitative) _____

Effectiveness of Controls: _____

_____

Proactive Measures of Conformance: _____

_____

Reactive Measures of Monitoring Incidents: _____

_____

Reporting of Non-Conformance & Action Taken: _____

_____

Audit Reporting and Document Maintenance:

Review and Sign Off: _____ Title: _____

_____ Title: _____

_____ Title: _____

Distribution:

Management: _____ Title: _____

_____ Title: _____

_____ Title: _____

Departments: _____

_____

_____

Document Administrator: _____

Title: _____

Department: _____

Storage Location: _____

Hard Copy: _____

Electronic: _____

Follow Up Actions: (Plan-Do-Check-Act, Module 16)

Audit Non Conformities:

Finding: _____

Department: _____

Responsible Person: _____

Action Plan Responsibility:

Department: _____

Responsible Person: _____

Tracking Tool: _____

Schedule: _____

Continuous Improvement Items:

Department: _____

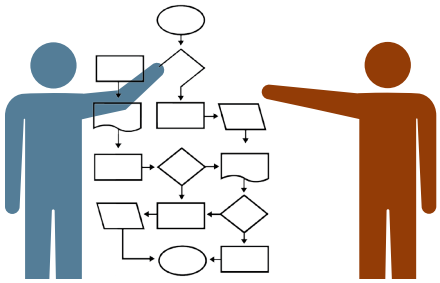
Responsible Person: _____

Tracking Tool: _____

Schedule: _____

MODULE 18

Documentation and Information Management



Documentation and Information Management is the process of:

- Collecting appropriate safety and health data for leading and lagging performance metrics.
- Establishing and maintaining appropriate safety and health management records.

How it works

Companies should establish and maintain appropriate safety and health management records as designated by senior management that include, among others:

- Safety and health policy
- Objectives
- Responsibilities
- Audit investigations
- Management reviews

The type and volume of records should reflect the size, complexity and risks of the organization. The safety and health management systems should identify those documents that require retention and maintenance.

Documentation should be developed carefully so as not to deflect resources from proactive safety and health management activities.

Flow of the Process

- Develop a documentation retention process that balances need to retain with the need to perform and improve.
- Ensure records are legible and identifiable and linked to the activities from which they derive. They should be readily retrievable and physically protected.
- Retain documents based on regulatory requirements as well as company document retention policy, as appropriate.
- Determine performance trends by looking for common or significant events and patterns in root causes, inspection records, audit action items, behavior observations, etc.

Workbook Materials For Module 18

Safety & Health Data & Records

Responsible Department: _____

Team Leader: _____ _____

Members: _____ _____

_____ _____

_____ _____

Document Storage and Retention:

Document Number/Rev: _____

Title: _____

Department: _____

Subject: _____

Category: _____

Regulatory Required: _____

Agency: _____

Corporate Legal Consideration: _____

Storage Location:

Electronic: _____

Hard Copy: _____

Access Clearance: _____

Persons/Positions: _____

Departments: _____

Document Retention:

Period: _____

Regulatory Requirement: Yes _____ No _____

Agency: _____

Archive: Yes _____ No _____

Location: _____

Destroy: Yes _____ No _____

Method: _____

MODULE 19

Engineering and Construction

When planning for engineering and construction projects, the standards of the company's SHMS should be incorporated from the beginning. Any health and safety impacts resulting from projects on site should be considered and action plans developed.

Engineering and Construction is the process of:

- Designing, procuring, constructing and commissioning new mines, facilities and modifications to existing facilities to promote good safety and health performance throughout the operational life of the facility.
- Integrating the "hierarchy of controls" and good design principles to minimize new mine, facility or modification risk to the lowest level reasonably achievable.

How it works

New operations and modifications to existing facilities should be designed, procured, constructed and commissioned to promote good safety and health performance throughout the operational life of the operation, mine and/or processing facility by applying recognized engineering standards, procedures and management systems.

Facilities should be operated and maintained within the approved design to ensure performance and compliance with all applicable laws and regulations. This also means ensuring the technical standards for design, construction and commissioning adhere to industry codes and standards and regulatory requirements.

Safety and health management requirements should be incorporated as a part of all relevant design review for construction, operation and maintenance for new fixed installations, mobile equipment and systems.

Where feasible, companies should work with original equipment manufacturers (OEM) to ensure purchased equipment and systems are designed to be as safe as practicable. Engineers and designers should be aware of the company's safety and health expectations, standards and management system in advance of completing design or engineering work.

Flow of the Process

- Safety and health management, operations and maintenance expertise are integrated into project planning processes from the inception.
- Where engineering and design codes and standards and/or regulatory compliance are inadequate or absent, management should develop its own with external validation.
- Design and construction for any project with safety and health management considerations should target regulatory as the minimal allowable risk.
- Deviations from standard and accepted design are reviewed and approved by senior management. Variances are documented with adequate justification details.
- The S&H management aspects of construction work conducted on company property should conform to the company's SHMS standards and expectations.
- Pre-start up safety review should be conducted on all new operations, mines, processing facilities, major mobile and fixed equipment, and control systems. See Module 4 for details.
- Ensure that Engineering and Construction are fully integrated with Module 4 and 20.

Workbook Materials For Module 19

Engineering/Construction Project

Responsible Department: _____

Team Leader: _____ _____

Members: _____ _____

_____ _____

Safety & Health Responsibility: _____

Project Description: _____

_____

_____

Project Source:

In House: _____

Contractor: _____

OEM Supplier: _____

Site Location: _____

Department: _____

Supervisor: _____

Risk Register Tasks Associated: _____

(Module 4) _____

_____

_____

Mitigating Effect on Task Risk: Yes _____ No _____

Risk Ranking Prior: _____

Risk Ranking After: _____

Industry Code or Regulatory Standard Compliance Required: Yes _____ No _____

Agency: _____

Standard: _____

Code or Standard meets minimum requirement of site compliance: Yes __ No __

Company Policy Compliance Required: Yes _____ No _____

Policy: _____

_____

Deviations Required: _____

_____

Equivalent Controls Applied: _____

_____

_____

Approvals and Sign Offs:

Department: _____ Position: _____

Department: _____ Position: _____

Department: _____ Position: _____

Department: _____ Position: _____

Pre-Start Safety Review:

Review Team:

Department: _____ Position: _____

Department: _____ Position: _____

Department: _____ Position: _____

Department: _____ Position: _____

Inspection Date: _____

_____

Inspection Plan: _____

_____

Findings: _____

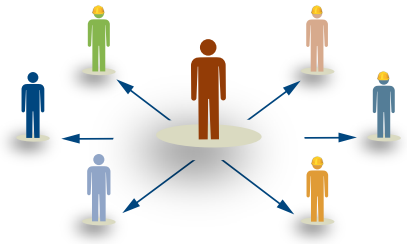
_____

Actions Needed: _____

_____

MODULE

Contractor Management and Purchasing



Contractors play a significant role in safety and health management at facilities whether there are contract miners or contractors performing project work. They often face very similar, if not more significant, risk than do company employees. If contractors do not receive the appropriate instruction and direction to work safely, they can introduce new hazards to the workplace that put themselves and company workers at risk.

Contractor Management and Purchasing is the process of:

- Ensuring all company-sponsored project proposals include safety and health management criteria or requirements.
- Pre-screening contractors for acceptable safety and health management experience, qualifications and procedures.
- Ensuring all contractors and third parties are aware of your organization's safety and health management requirements and expectations

How it works

Selection and bidding: Contractor selection should be conducted using a screening process to ensure adequate safety and health management competencies and experience. Contractors should know the company's safety and health management requirements in the bidding process.

Orientation and training: Once selected, contractors, vendors and visitors should be provided adequate orientation and any ancillary training necessary to understand site rules, safe work and emergency procedures, communication protocols or other site require-ments.

Enforcement: Company employees should be authorized to question the safety practices and behaviors of any contractor or other third party working on site.

Procurement policy: In addition, companies should develop a safe procurement policy in which purchases of fixed or mobile equipment include coordination with the vendor to ensure the equipment comes engineered with all necessary safety features and controls, e.g., noise control on stationary motors and pumps, maintenance access points on mobile equipment, diesel exhaust controls, etc.

Flow of the Process

- Ensure all company-sponsored project proposals and/or requests for proposals include safety and health management criteria or requirements.
- Pre-screen all operational and project contractors for acceptable S&H management experience and qualifications.
- Ensure contractors notify the company of the introduction of tools, equipment, materials, chemicals or work processes that could be a risk to contractors and/or company personnel.
- Ensure all contractors and third parties are aware of S&H management requirements and expectations including emergency response plans and reporting obligations.
- Integrate a safe procurement process into the company's risk management function, e.g., Module 4 Fatality Prevention / Risk Management.

Workbook Materials For Module 20

Request for Proposals - Safety & Health Provisions

Responsible Department: _____

Contract Administrator: _____

Review Committee:

- Procurement: _____
- Health & Safety: _____
- Operations: _____
- Engineering: _____
- Corporate: _____

Final Sign Off: _____

Safety and Health Information to Provide Prospective Bidders:

All RFP's should supply prospective contractors the regulatory and company standards to which they will be required to comply while on site.

Scope of Work – Requirements:

SOW Statement: _____

_____

Inherent Hazards of the Job: _____

_____

Inherent Hazards of the Environment: _____

_____

Regulatory Requirements:

Governing Agencies: _____

_____

_____

Contractor I.D.: _____

_____

_____

Certifications: _____

_____

_____

Training: _____

_____

_____

Compliance Areas: _____

_____

Company Requirements:

Contractor I.D.: _____

_____

_____

Certifications: _____

_____

_____

Training: _____

_____

_____

Site H&S Policies: _____

_____

_____

Other: _____

_____

_____

Safety and Health Information to Request from Prospective Bidders:

A contractor's H&S programs and compliance should weigh heavily in the evaluation and award process. In responding to a RFP, bidders should be expected to provide at a minimum.

Regulatory Compliance:

Contractor I.D.: _____

_____

Certifications: _____

_____

Training Completed: _____

_____

RFP Standard/Policy Compliance:

Contractor I.D.: _____

_____

Certifications: _____

_____

Training: _____

_____

Site H&S Policies: _____

_____

Other: _____

_____

Company Safety and Health Plans:

Training: _____

_____

Hazard Identification & Risk Assessments Procedures: _____

_____

Safety & Health Management Programs: _____

_____

Worksite Inspection Practices: _____

Environmental Management: _____

Community Relations: _____

_____

Injury and Incident Statistics: _____

_____

RFP Project Specific:

High Level Risk Assessment: _____

_____

Work Methodology Statement: _____

_____

Health & Safety Management Plan: _____

_____

Equipment and Tools Required: _____

_____

PPE Requirements: _____

_____

Contractor Personnel:

Administrator: _____

Responsible for H&S: _____

Site Supervision: _____

Post-Award – Health & Safety Planning & Considerations

Pre-Commencement and Mobilization

Authorized Personnel:

Supervisors: _____

Workforce: _____

Site Entry Requirements:

Employee Clearances: _____

_____

Training, Certifications, Licenses: _____

By Regulation: _____

By Company Standard: _____

Final Risk Assessments:

Identified Risks/Hazards: _____

Risk Ranking: _____

Persons Exposed: _____

_____

Mitigating Controls: _____

_____

Administrative Controls:

Safe Job Procedures: _____

_____

Work Place Inspections: _____

_____

Work Permits: _____

_____

Residual Risk after Controls: _____

Audit Process: _____

_____

Equipment and Materials for the Job: _____

_____

Site Personnel Exposure to Risk: _____

_____

Licenses/Permits Required: _____

_____

Safeguards Required by Site: _____

_____

Inspections and Reports: _____

_____

Site Communication and Emergency Notice Procedures: _____

_____

Kick Off Meeting:

Date: _____

Attendees:_____

Company: _____

Contractor: _____

Agenda: _____

_____

Contractor Safety & Health Management

Workplace Inspections:

As Provided by Contractor:

Daily Task Inspections: _____

Equipment Pre-Ops: _____

Contractor/Company Cooperative:

Contractor Representative: _____

Company Representative: _____

Schedule/Frequency: _____

Contractor Auditing: (certify conformance with Health & Safety management plans)

Company Team: _____

_____

_____

Contractor Team: _____

_____

_____

Audit Subjects: _____

_____

Audit Schedule: _____

Contractor Reporting to the Health and Safety Responsible Person:

New Employees: _____

Training Updates: _____

Change of Equipment or Materials: _____

Accidents and Near Misses: _____

Revisions to Hazards and Risk: _____

Changes to Risk Assessment: _____

Daily and Workplace Inspection Reports: _____

Contractor Meetings:

Contractor H&S Representative: _____

Company H&S Representative: _____

Meeting Schedule: _____

Topics: _____