Three Simple Things to Improve Process Safety Management

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Challenges of PSM

- Focused at global level
- Complications
- Consistency
- Issues at local level
- Competency of personnel
Competency

- Company Policy
- Safety
- Environment
- Equipment
- Process
- Procedures
- Troubleshoot
Local level

- Where bad things happen
- Resources stretched
- Risk increased
Normal

- Process design
- Specific criteria
  - Flow
  - Pressure
  - Temperature
  - Level
- Process safety defines normal
Process Safety

- Management System
  - Identifies
  - Eliminates or reduces
  - Responds
  - Recovers

- A formally established and documented set of activities
designed to produce specific results in a consistent manner on a sustainable basis.
Characteristics of an effective management system

- Formality
- Flexibility
- Accountability
- Control
Formality

- Procedures
- Assignments of responsibility
- Assignment of authority
Flexibility

- Balanced approach
- Mesh with the operations
Accountability

- Senior management
- Line management
- Employees
Control

- Maintain “normal”
- Increased reliability of equipment
- Better decision making
- Safer operations
Active and latent

- Active failures - unsafe acts, violations, errors, omissions
- Latent conditions - poor design, unworkable procedures, gaps in supervision
- Latent conditions may be present for years
- Lead to active failures
Active and Latent Failures
#1 Simple thing

- Near miss/incident reporting system
- For every so many near misses, there will a number of minor injuries, and then a major injury.
- The only difference between most near miss experiences and an injury is timing or a few inches
Reasons for not reporting

- It's inconvenient to fill out a "near-miss form." It's less stressful to just forget it happened.
- Near-miss experiences are typically private affairs, and there's no way to hold people accountable for them.
- Organizational influences deter near-miss reporting.
- Slogans like "all injuries are preventable" don't help. Employees think to themselves, "If all injuries are preventable and I almost got injured, I sure don't want anyone to think I'm so careless."
Reasons for not reporting

- Do not understand what an incident is
- Anything unusual that occurs or is noticed
- Must define usual
- Normal operations???
After the report

- Conduct an investigation
- Can be very simple or very complex
- Look for the root cause
  - Management system breakdown
Benefits

- Find contributing factors
  - Training issues
  - Behavior issues
  - Workload issues
    - No time
    - Production pressure
  - Taking shortcuts

- Find latent failures
Follow up

- Management response
  - Timely

- Procedure changes
  - Good time to develop written procedures

- Training

- Repair/Replace equipment
  - Modify mechanical integrity program

- Provide recognition
Generative culture

- Actively seek
- Messengers are trained and rewarded
- Responsibility is shared
- Failures lead to far reaching reforms
- New ideas are welcomed
SUGGESTION

BOX
#2 Simple Thing

- Eliminate replacement in kind from MOC
- Meets design specification of original
Replacement in kind

- RIK sometimes confusing
- RIK sometimes used to speed up change
- Do at process/plant level
Benefits

- Allow personnel to practice the process
- MOCs interrelated with all other elements
- Increase PSM competencies
Warning signs

- It just happened with no warning
- Latent failures
- Must learn to identify warning signs
#3 Simple Thing

- Conduct thorough job hazard analysis
- Select the job to be analyzed
- Break the job down into a sequence of steps
- Identify potential hazards
- Determine preventive measures to overcome these hazards
1. PROCEDURES
   • What are the procedures for the task?
   • What is unclear about the procedures?
   • What order will we use these procedures?
   • What permits are needed for hazard controls?

2. EQUIPMENT AND TOOLS
   • What are the right tools for the job?
   • What is the correct way to use them?
   • What is the condition of the tool?

3. POSITIONS OF PEOPLE
   • What could we be struck by?
   • What could we strike ourselves against?
   • What can we get caught in/on/between?
   • What are potential trip/fall hazards?
   • What are potential hand/finger pinch points?
   • What extreme temperatures will we be in/around?
   • What are the risks of inhaling, absorbing, swallowing hazardous substances?
   • What are the noise levels?
   • What electrical current/energized system could we come in contact with?
   • What would be a cause for overexerting ourselves?

4. PERSONAL PROTECTIVE EQUIPMENT
   • What is the proper PPE?
   Hard hat, glasses/goggles, ear plugs, gloves, steel toe boots, respiratory system, fire retardant clothing

5. CHANGING THE COURSE OF WORK
   • What would cause us to have to stop or rearrange the job?
   • What would cause us to change our tools or equipment?
   • What would cause us to have to change our position?
   • What would cause us to have to change our PPE?

YOU HAVE THE RIGHT AND THE OBLIGATION TO STOP UNSAFE ACTS
Procedure for use

- Performed as a team
- Answer each question in order
- Do NOT skip questions
- Document
- Insure ALL team members understand
Benefits

- Procedures
- Hazards found
- Latent failures found
- Training gaps
Three Simple Things

- Near miss/incident reporting
- Eliminate replacement in kind exemption
- Conduct thorough job hazard analysis
- Implemented at process/plant level
- May be temporary
Pillars of Risk Based Process Safety

- Commitment to Process Safety
- Understand Hazards and Risk
- Manage the Risk
- Learn From Experience

- Increasing numbers of new hires in oil and gas industry
- Must find new ways to make them competent
O.U.R.
Smooth Running
Good Looking
Safe As Can Be
GAS PLANT