



6. Monitor MOC performance and efficiency in a practical way.
7. Achieve better MOC results with fewer resources, if possible

**Examples of changes that should be managed or can increase the risk :**



### **What is Management of change (MOC) ?**

**Management of change (MOC) is a process for evaluating and controlling modifications to facility design, organization, or activities – prior to implementation.** MOC is the most important element of process safety management. Changes occur when modifications are made to the operation, subtle changes can occur when new chemical suppliers are selected, NFPA hazard classification change, procedures are modified, or site staffing and /or company organization is revised.

### **Objective of Management of Change (MOC) ?**

The objective of MOC is to prevent changes in process chemistry and technology, equipment operations, maintenance, and supporting functions from introducing unacceptable risks. Companies recognized that insufficient control of changes plays a major role in accidents. MOC is implemented at non replacements – in-kind (RIKs) changes.

### **Goals of Management of Change (MOC) procedures / guidelines ?**

1. Expand MOC into the process/project life cycle and non-traditional types of changes.
  2. Reduce the number of MOC related incidents and PSM audit findings.
  3. Tailor MOC systems to the facility size, perceived risk anticipated usage rate of the MOC system, and safety culture.
  4. Quickly diagnose MOC problems without having to perform or wait for a PSM audit.
  5. Make MOC systems more fault tolerant and resistant to circumvention or human error.
- Process equipment changes such as materials of construction design parameters, and equipment configuration.
  - Process control changes such as instrumentation, controls, interlocks, and computerized systems, including logic solvers and software .
  - Safety system changes such as allowing process operation while certain safety systems are out of service.
  - Site infrastructure changes, such as fire protection, permanent and temporary buildings, roads, and service systems.
  - Operations and technology changes such as process conditions, process flow paths, raw materials and product specifications, introduction of new chemicals on site, and changes in packaging.
  - Changes in inspection, testing; and preventive maintenance, or repair requirements, such as lengthening an inspection interval or changing the lubricant type used in a compressor.
  - Changes in procedures such as standard operating procedures, safe work practices, emergency procedures, administrative procedures, and maintenance and inspection procedures.
  - Organizational and staffing changes such as reducing the number of operators on a shift, changing the maintenance contractor for the site, or changing from 5-day operation to 7-day operation.
  - Policy changes such as changing the amount of overtime permitted.
  - Other PSM system element changes, such as modifying the MOC procedure to include a provision for emergency change requests.

### MOC System Design should cover :

Successful implementation of MOC in a company or facility requires following key principles in mind :

- ✓ **Keep it simple, yet fit for duty.** A simple system that works better than a complex.
- ✓ **Obtain widespread acceptance and commitment.** Solicit the opinions and concerns of all affected groups when developing a system.
- ✓ **Field test the system prior to its official implementation.** Debugging it early will pay off in the long run. It will eliminate issues at early stage for the robustness of overall system implementation.
- ✓ **Provide adequate training.** All involved personnel with MOC system should be educated with their roles and responsibilities and company guidelines.
- ✓ **Periodically monitor the effectiveness of the MOC system.** Integrate the use of performance/efficiency metrics into real-time control of the system.
- ✓ **Use audits and management reviews.** Routinely monitor the MOC system to be sure that the system is functioning as expected. A management system that is never reviewed will eventually degrade. Find ways to continuously improve your MOC procedures and practices.
- ✓ **Demonstrate management leadership and commitment.** Properly support the MOC program by providing adequate resources and making the hard decisions in favour of safety when MOC reviews indicate a problem. Like most aspects of process safety, MOC success begins at the top.

In general, an MOC system can address process safety issues and be applied to all operations involving the manufacture, use, or handling of hazardous substances or energy. However, the company should determine the physical areas of a facility where MOC is applied, the phases of a process life cycle for application (e.g. Process Development, Design, Construction, Operation, Decommissioning), and the sources of change (e.g. Hardware, Software, Procedures, Personnel, Organizational).

#### 1. MOC system scope covering :

- Physical facility areas for which the MOC review protocols will be implemented.
- Types of changes that will be evaluated using the MOC system.
- Boundaries and intentional overlaps with other elements or administrative systems

#### 2. Integration with other PSM Elements :

- Process Hazard Analysis (PHA) or Other Risk studies.
- Training
- PSSR
- Incident / Accident investigation & Audits

#### 3. Review and Authorization

#### 4. Resolution of Key Issues like

- Classification of the significance of the change
- Process or business need and the technical basis justification for the change
- Timing of the change / Duration
- List of information needed to review the change
- Checklists for ensuring that all elements of the change are addressed
- Preferred hazard evaluation techniques for analysing safety and health implications
- Hazard/risk control/tolerance guidelines
- Documentation needs, forms, and retention policy
- Means for communicating changes to affected personnel in a timely fashion
- Variance/exception policy for special situations
- Auditing, Close out, Roles & Responsibilities

#### 5. Monitoring

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