Checklist -

PROCESS SAFETY MANAGEMENT

The Need

- Past disasters
- Current disasters
- Perceived weakness and lack of understanding of the program

The Need

Bhopal (India) (1984) – 2000 deaths, Isocynate release

Cincinati (OH) (1990) – 2 deaths and explosion

Pasadena, Tx (1989) – 23 deaths, 132 injuries, Petroleum explosion

Sterlington, LA (1991) – 8 deaths, 128 releases, chemical release

Elements of the Standard

- Employee Participation
- Toxicity
- Technology of the process
- Equipment in the process
- Mechanical integrity
- Inspection and Testing
- Operating Procedures
- Safe work practices
- Training
- Compliance audits
- Trade secrets

Types of Industries

- Industrial organics and inorganics
- Paints
- Pharmaceuticals
- Adhesives
- Sealants and fibers
- Petrochemical facilities
- Paper mills

Employee Participation

So, now you are in PSM?

Form a committee, with members such as –

1. Process Engineers
2. Maintenance
3. Operators
4. Management
5. Safety
6. Consultants

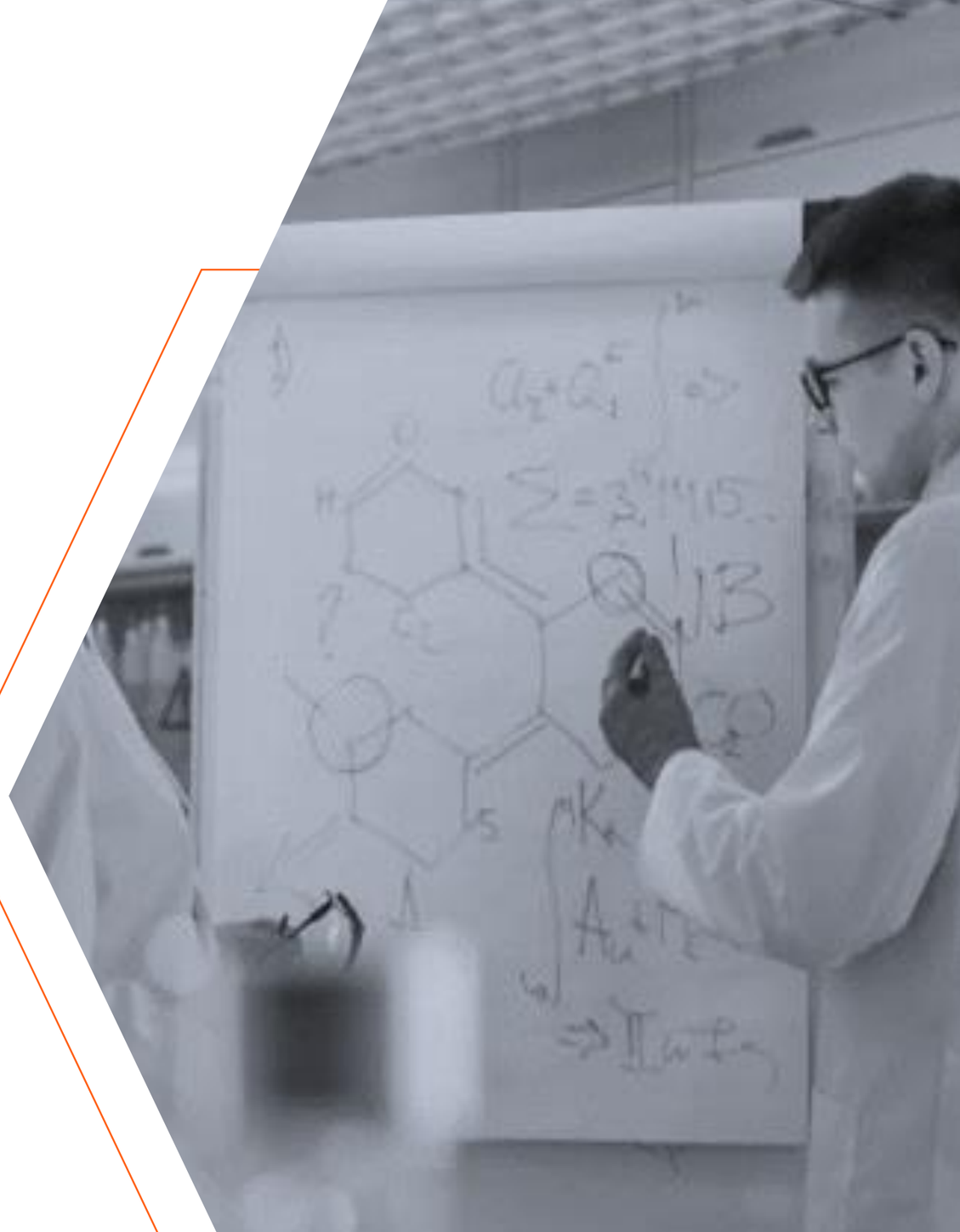
Conducting a hazard assessment

Key determinants:

1. Chemicals in your process
2. Process Chemistry
3. Quantity of chemicals in pounds
4. Threshold quantities

Collecting the toxicity information

1. Permissible Exposure Limits
2. Physical data
3. Reactivity data
4. Corrosivity data
5. Thermal and chemical stability data
6. Hazardous effects of inadvertent mixing of materials that could foreseeably occur



What does one need to do?

- ✓ The facility must establish and implement written procedures to maintain the on-going integrity of process equipment
- ✓ Train employees involved in maintaining the on-going integrity of process equipment
- ✓ Conduct tests and inspections on the equipment
- ✓ Document all of the above

Analysing hazards

- ✓ The facility must perform initial hazard analysis on processes covered by this standard
- ✓ Analysis shall be appropriate to the process complexities and shall identify, control and evaluate hazards on-the-go
- ✓ Considerations such as extent of process hazards, number of potentially affected employees, age of process and operating history of processes

How do you do this?

The facility must use:

1. What –if scenarios
2. Develop a checklist
3. Hazard and Operability study (HAZOP)
4. Failure mode and Effect analysis (FMEA)

Wait.. There’s more?

The facility addresses:

1. Technical basis of Change
2. Impact to employee safety and health
3. Modification to Operating Procedures
4. Time period of Change
5. Authorization of Change

Safe work Practices

Provide the control of hazards in work activities such as:

- ✓ Lockout/Tag-out
- ✓ Confined Space entry
- ✓ Operating Processes, piping or equipment

Safety Training

PSM training entails for:

1. Safety and hazards associated with the covered process
2. Safe work practices
3. Refresher training required every three years or animated video training when necessary

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