PSM/ RMP Overview

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MONTROSE ENVIRONMENTAL

Understanding PSM and RMP- limit your risks early for the best results.

Agenda

- Define and Illustrate key parts of
  - OSHA 29 CFR 1910.119 Process Safety Management (PSM) and,
  - EPA Risk Management Plan (RMP) regulations- Section 112(r) of Clean Air Act
- Relativity of these regulations to you.
- Conservation of your resources while meeting standards.

These slides represent federal rules and do not take into account any state or local rules.

This information is being presented in a condensed format and may not include all elements of any particular regulation.

PSM VS RMP–what's the difference

PSM-inside the property and is meant to protect human lives.

It includes everything that hazards can reach in the process.

RMP - outside the property and is meant to protect our environment and the community.

It includes homes, schools, rivers, trees, pretty much everything outside of your fence line.

PSM- Process Safety Management

- History
  - 1984 Bhopal India
    - Union Carbide- pesticide plant (methyl isocyanate gas)
    - Over 3700 deaths; over 500,000 injured
  - 1992 OHSA issues PSM Rules
    - Oversight for highly hazardous chemical Mfg, users, transport or storage.
  - 2005 Texas City Texas
    - 15 deaths; 180 injured
  - 2007 added a National Emp

Control Systems- instruments, mitigation

Alarms- people response

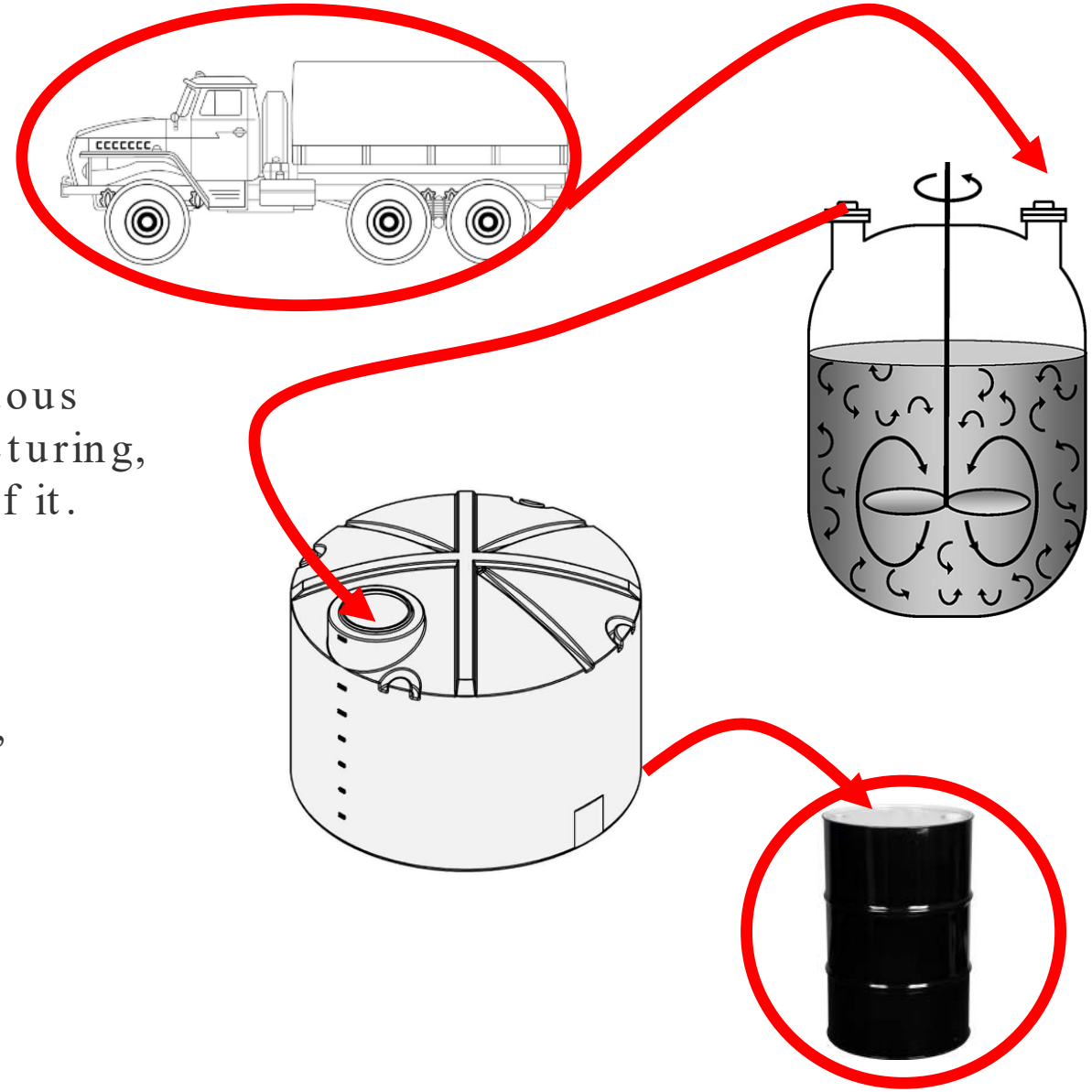
Highly Hazardous Chemicals

- OSHA 1910.119 and Subpart H- Ammonia, Hydrochloric Acid, H2S, and flammable gas such as methane.
- Cat 1 flammable gas or liquid over 10,000 lbs, within the covered process system.

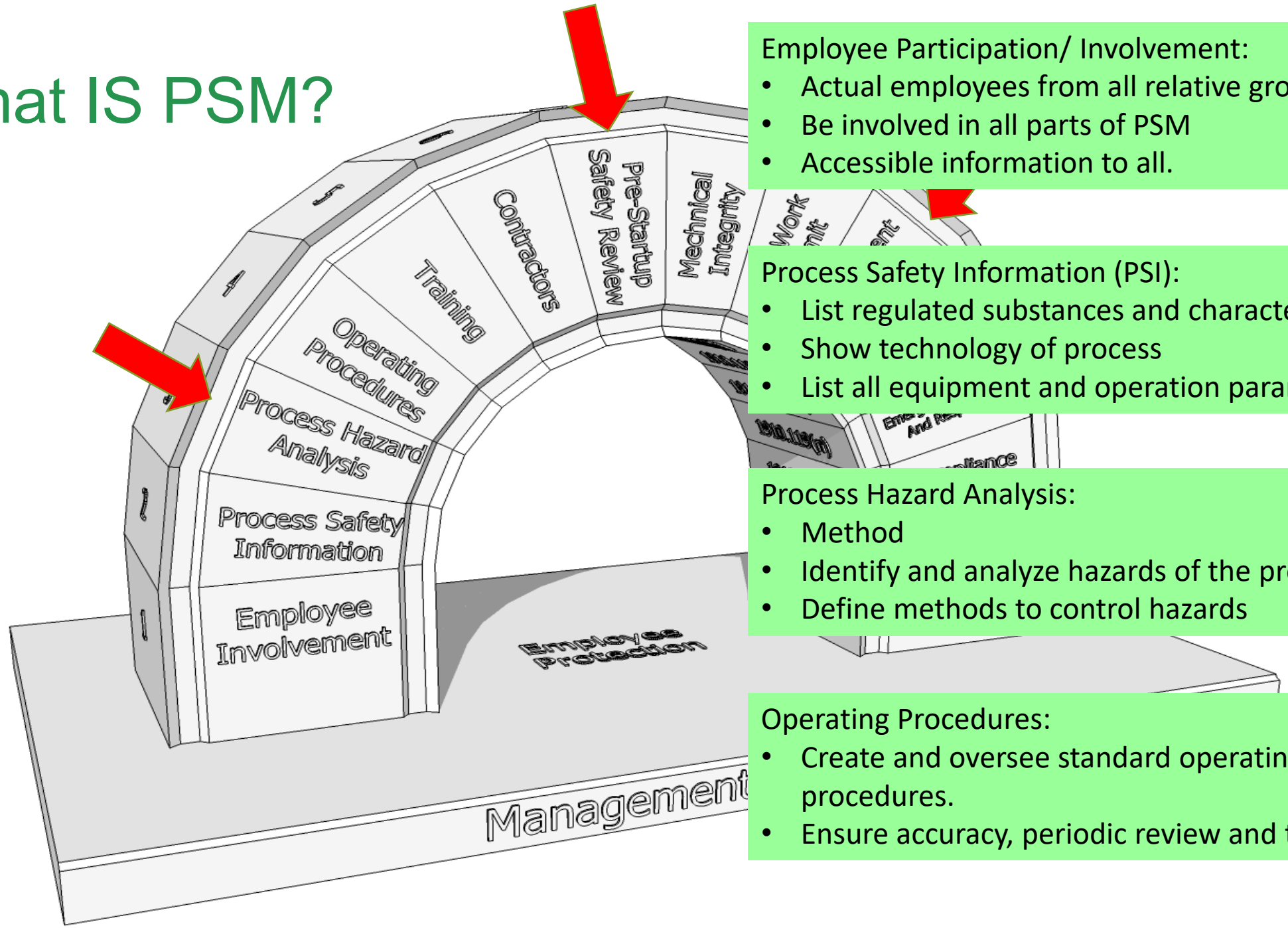
Some States do not follow OSHA exemptions, such as for municipalities.

Covered Process System?

- Where does it begin and end?
- Any activity involving a highly hazardous chemical- any use, storage, manufacturing, handling, or the on-site movement of it.
- This includes:
  - Interconnected vessels
  - Separate vessels that “could be” affected.



What IS PSM?



Employee Participation/ Involvement:

- Actual employees from all relative groups
- Be involved in all parts of PSM
- Accessible information to all.

Process Safety Information (PSI):

- List regulated substances and characteristics
- Show technology of process
- List all equipment and operation parameters

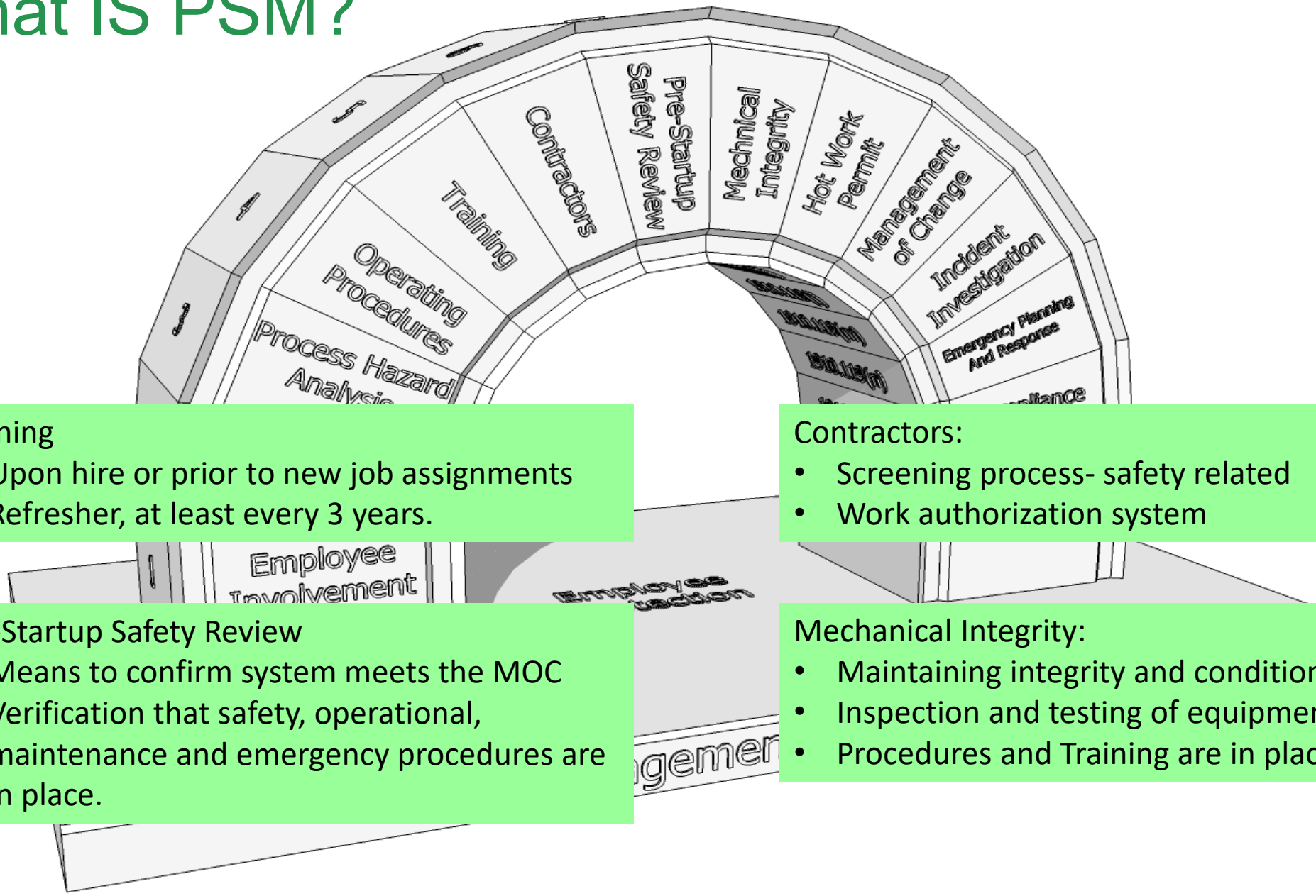
Process Hazard Analysis:

- Method
- Identify and analyze hazards of the process
- Define methods to control hazards

Operating Procedures:

- Create and oversee standard operating procedures.
- Ensure accuracy, periodic review and training

What IS PSM?



Training
- Upon hire or prior to new job assignments
- Refresher, at least every 3 years.

Contractors:
- Screening process- safety related
- Work authorization system

Pre-Startup Safety Review
- Means to confirm system meets the MOC
- Verification that safety, operational, maintenance and emergency procedures are in place.

Mechanical Integrity:
- Maintaining integrity and condition of equip.
- Inspection and testing of equipment
- Procedures and Training are in place

Hot Work Permits:

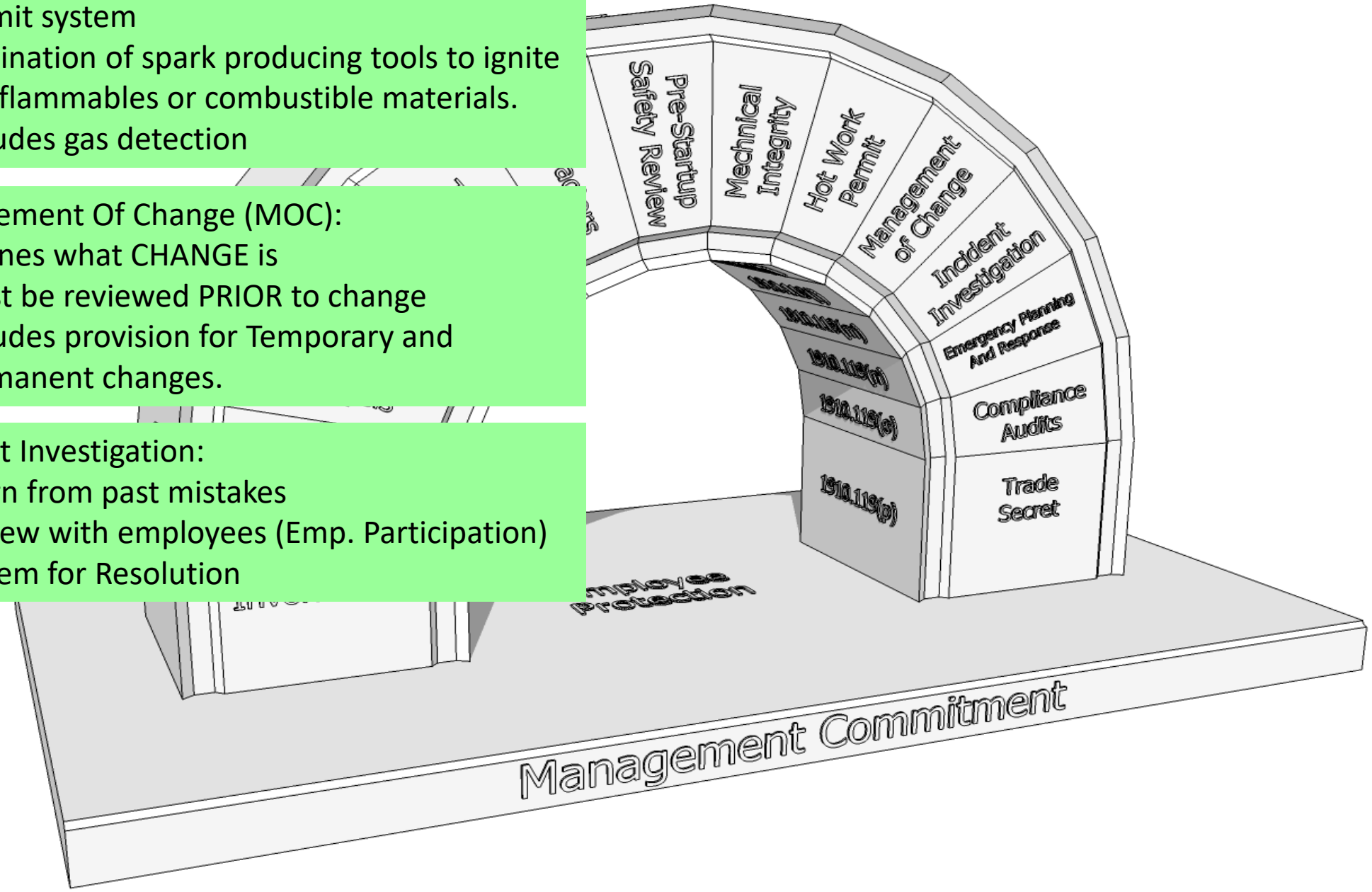
- Permit system
- Elimination of spark producing tools to ignite any flammables or combustible materials.
- Includes gas detection

Management Of Change (MOC):

- Defines what CHANGE is
- Must be reviewed PRIOR to change
- Includes provision for Temporary and Permanent changes.

Incident Investigation:

- Learn from past mistakes
- Review with employees (Emp. Participation)
- System for Resolution



Emergency Planning and Response:

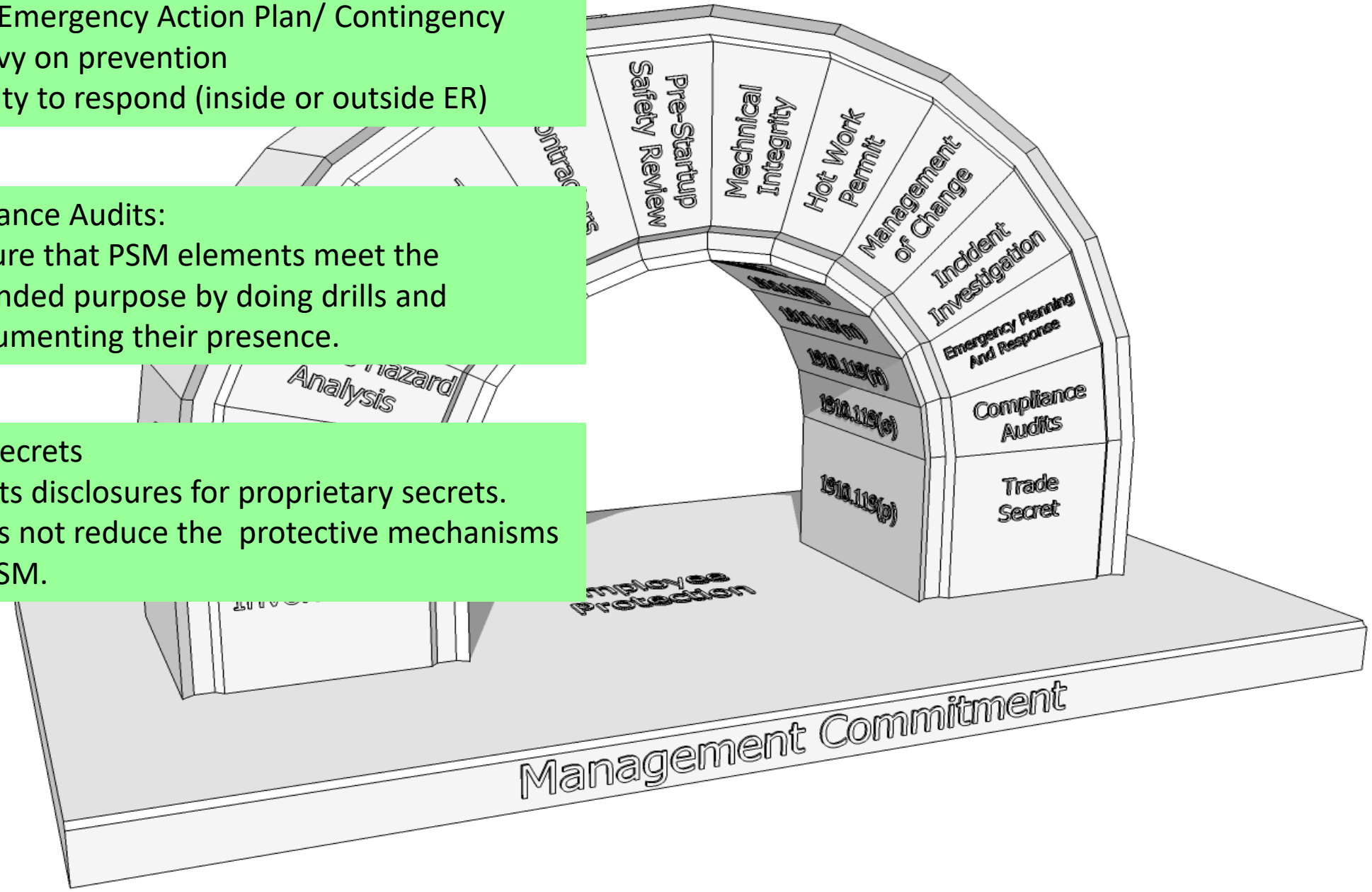
- aka Emergency Action Plan/ Contingency
- Heavy on prevention
- Ability to respond (inside or outside ER)

Compliance Audits:

- Ensure that PSM elements meet the intended purpose by doing drills and documenting their presence.

Trade Secrets

- Limits disclosures for proprietary secrets.
- Does not reduce the protective mechanisms of PSM.



Why a PHA? What's wrong with brainstorming?

- PHA methods provide rules for how you review hazards.
- PHA will document your brainstorming
- PHA allows you to justify why you took OR did not take a specific action.
- You can review your previous PHAs whenever a change occurs in the future.
- It is a requirement of OSHA.

Ultimately a PHA will

- Document potential Risks and how you have chosen to reduce them.
- Help you to understand how risk ranking can reduce your cost for compliance.

- Example: Backflow of process water could affect city water system
  - Without Safeguards:
    - Severity: HIGH; Likelihood: Likely to Occur
  - With Safeguards: 2 check valves, check valve maintenance and testing
    - Severity: HIGH; Likelihood: Improbable

PHA Results

Guard Rail System around pit

Recommendation	Max Risk	Place(s) Used in HAZOP
4. Recommendation 4	Very High	Consequences: 3.3.2.1
8. Recommendation 8	Very High	Consequences: 10.1.5.1, 10.1.5.2, 10.1.5.3, 10.1.5.4, 10.1.5.5, 10.1.6.1, 10.1.6.2, 10.1.6.3, 10.1.6.4, 10.1.6.5, 10.3.1.1, 10.3.1.2, 10.3.1.3, 10.3.1.4, 10.3.1.5
9. Recommendation 9	High	Consequences: 10.1.7.1, 10.2.5.1
10. Recommendation 10	High	Consequences: 10.1.7.1, 10.2.5.1
11. Recommendation 11	High	Consequences: 10.1.7.1
2. Recommendation 2	High	Consequences: 1.1.2.2, 1.1.2.3, 1.1.2.4, 1.1.2.5, 1.1.2.6, 1.9.2.1, 1.9.2.2, 1.9.2.3, 1.9.2.4, 1.9.2.5, 10.1.1.2, 10.1.1.3, 10.1.1.4, 10.1.1.5, 10.1.1.6
5. Recommendation 5	High	Consequences: 10.1.3.2, 10.1.3.3, 10.1.3.4, 10.1.3.5, 10.1.3.6
1. Recommendation 1	Medium	Consequences: 1.2.1.1, 1.2.1.2, 1.2.1.3, 1.2.1.4, 1.2.1.5, 1.2.1.6, 10.1.2.1, 10.1.2.2, 10.1.2.3, 10.1.2.4, 10.1.2.5, 10.2.1.1, 10.2.1.2, 10.2.1.3, 10.2.1.4, 10.2.1.5
3. Recommendation 3	Medium	Consequences: 3.3.1.1, 3.3.1.2, 3.3.1.3, 3.3.1.4, 3.3.1.5
6. Recommendation 6	Medium	Consequences: 10.1.4.1, 10.1.4.2, 10.1.4.3, 10.1.4.4, 10.1.4.5, 10.2.3.1, 10.2.3.2, 10.2.3.3, 10.2.3.4, 10.2.3.5

Pedestrian Fall

Driver Unloading

Wet Process Slip

Tight Work Area

ETC

14 risks reduced by one safeguard

Conserve Your Resources

- Spend your money where it makes sense.
- Use your resources where it makes sense.
- Give yourself the best chance to:
  - Avoid Overplanning
  - Avoid Underplanning

Guard Rail: $1500

Fall Protection: $600
-anchor point
-means of retrieval $400+
-SOP for use and inspection
-Risk of those that fail to use it
-Worry

(engineer the problem out)

Summary

- OHSA's PSM focus is to _____ _____.
- There are _____ elements of PSM.
- PHA main purpose is to identify and _____ process hazards and find ways to _____ them.

Risk Management Plan (RMP)

- Part of the Clean Air Act 1990 section 112(r);
  - Chemical facility accident prevention of " REGULATED SUBSTANCES"
  - Requirements:
    - Hazard Assessment- potential effects of an accidental release; **worst - case scenarios** ;
    - Prevention- precautions, maintenance, monitoring and training;
      - This will most likely be managed already through PSM
    - Emergency Response Program- training, **community response organization notifications** ;
    - Resubmission every 5 years.

Are you regulated by RMP?

- Owners/ Operators who manufacture, use, store or 'otherwise handle' regulated substances in a process.
- A 'process' is any activity involving a listed regulated substance, including any use, storage, manufacture, handling or onsite movement of such substance or any combination of these activities.
- **General Duty Clause - see next slide.**
- Regulated substances (toxic or flammable) examples
  - Ammonia (concentration of 20% or more) of a solution 20,000 lbs.; **note PSM is 44% or more,**
  - Methane and Propane 10,000 lbs.,
  - Hydrogen Sulfide 10,000 lbs.

General Duty Clause

- Section 112(r)(1), also known as the General Duty Clause (GDC), which makes the owners and operators of facilities that have regulated an**other extremely hazardous substances** responsible for ensuring that their chemicals are managed safely
- EPA further defines "other extremely hazardous substances" as:
  - any agent "which may or **may not be listed** or otherwise identified by **any** Government agency which may as the result of short-term exposures associated with releases to the air cause death, injury or property damage due to its toxicity, reactivity, flammability, volatility, or corrosivity" .

Can I avoid RMP by reducing your inventory below the established thresholds?

"I don't have to submit an RMP because I lowered my thresholds – and I believe that I lowered my risk. **Am I still subject to the General Duty Clause?**

Yes. If you use a regulated substance or any other extremely hazardous substance in any amount you are subject to the GDC.".

- EPA General Duty Clause document EPA 550 - F-20-002

Summary

- EPA focus is to protect our _____ and _____.
- Each covered chemical must be reviewed and, if necessary, (re)submitted every _____ years?
- If you do not meet the threshold limits of any listed, regulated substances then you will not be subject to EPA Clean Air Act 112(r)?
  - YES OR NO OR… …MAYBE

Thank You!!

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Montrose Environmental Group