



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
**ENVIRONMENTAL
MANAGEMENT**



Nuclear Safety

What It Means at Los Alamos National Laboratory

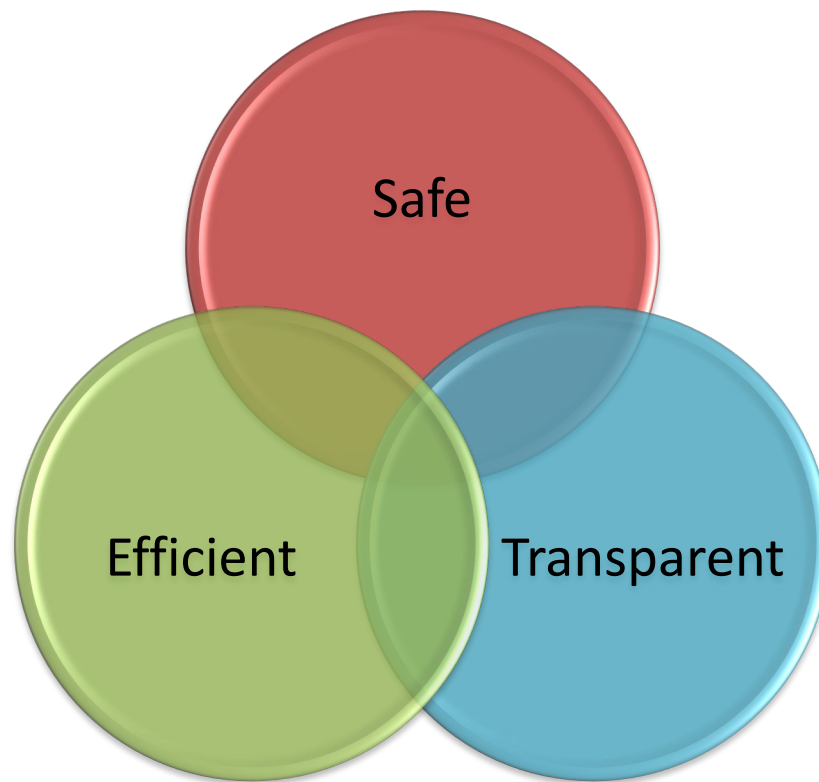


ENVIRONMENTAL MANAGEMENT
SAFETY ♦ PERFORMANCE ♦ CLEANUP ♦ CLOSURE

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Director of the Office of Safety and Facility Operations
Environmental Management Los Alamos Field Office
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- We strive to perform work





- We strive to perform work
 - **Safely – always number one**
 - Our mission is to protect
 - The worker,
 - The public,
 - The environment
 - Transparently
 - Efficiently





- Safety starts with the 10th code of federal regulations (CFR) section 851, (10 CFR 851), *Worker Safety*.
 - OSHA (Occupational Safety and Health Act)
 - ISM (Integrated Safety Management)
 - Define the work
 - Analyze the hazards
 - Implement the controls
 - Perform the work
 - Assess the results





- Lots of Requirements for safety:
 - **Codes of Federal Regulations:** 10 CFR 851 - *Worker Safety*, 10 CFR 850 – *Chronic Beryllium Exposure*, 10 CFR 835 – *Radiation Protection*, 10 CFR 830 – *Nuclear Safety*, 10 CFR 71 – *Packaging and Transportation of Radioactive Material*, 29 CFR 1910 – *OSHA*, 29 CFR 1926 – *Safety and Health Regulations for Construction*, 29 CFR 1960 – *FEOSH*, 40 CFR 116 – *Determination of Reportable Quantities*, 40 CFR 129 – *Toxic Pollutant Effluent Standards*, 40 CFR 260 – 265 – *Hazardous Waste Management*, 42 CFR 84 - *Approval of respiratory Protective Devices*, AND MORE!
 - **Industry Standards** - ANSI N43.3 - *General Radiation Safety Standard for Installations Using Non-Medical X-Ray and Sealed Gamma Ray Sources, Energies up to 10 MeV*, ANSI Z117.1-2009 - *Safety Requirements for Confined Spaces*, ANSI Z136.1 - *American National Standard for Safe Use of Lasers*, ANSI Z244.1-2003 - *Control of Hazardous Energy*, ANSI Z88.6 - *Respiratory Protection*, ANSI Z9.5 - *Laboratory Ventilation*





- Lots of Requirements for safety:
 - **DOE Orders & Requirements** - **DOE O 231.1B** - *Environment, Safety and Health Reporting*, **DOE O 226.1B** - *Implementation of Department of Energy Oversight Policy*, **DOE O 341.1** - *Federal Employee Health Services*, **DOE O 410.1** - *Central Technical Authority Responsibilities Regarding Nuclear Safety*, **DOE O 420.1C** - *Facility Safety*, **DOE O 422.1** - *Conduct of Operations*, **DOE O 425.1D** - *Verification of Readiness to Start Up or Restart Nuclear Facilities*, **DOE O 433.1B** - *Maintenance Management Program for DOE Nuclear Facilities*, **DOE O 435.1** - *Radioactive Waste Management*, **DOE O 440.1B** - *Worker Protection Program for DOE (Including the National Nuclear Security Administration) Federal Employees*, **DOE O 442.1** - *Department of Energy Employee Concerns Program*, **DOE O 442.2** - *Differing Professional Opinions for Technical Issues Involving Environment, Safety, and Health*, **DOE O 450.2** - *Integrated Safety Management System Program*, **DOE O 458.1** - *Radiation Protection of the Public and the Environment*, **DOE O 460.1D** - *Hazardous Material Packaging and Transportation*, **AND MANY MORE!**





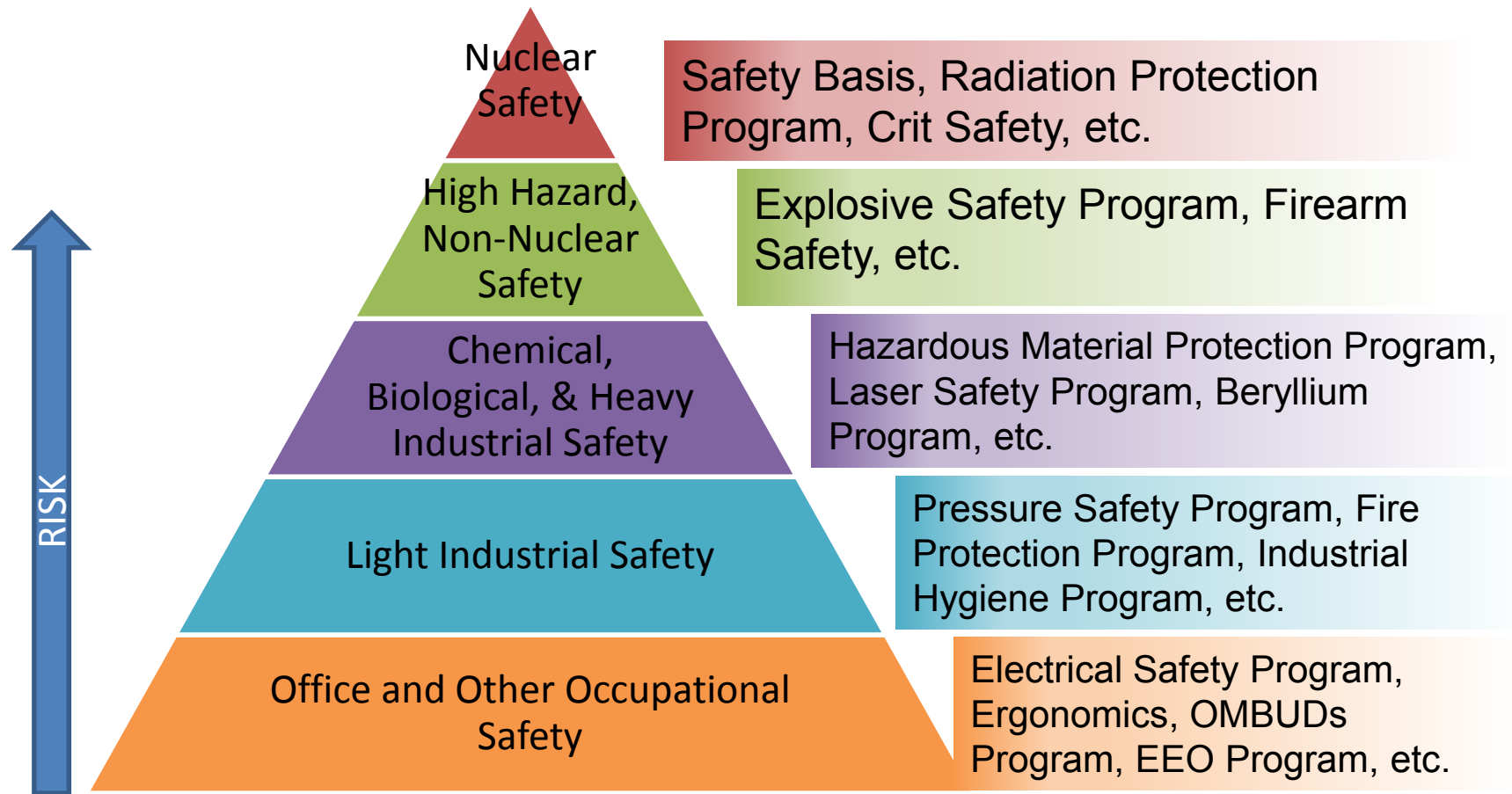
Safety Professionals know all of these rules and so much more!

- Required to be trained to strict requirements
- Numerous re-qualification activities, and,
- We know how to structure all of the rules to be efficient!



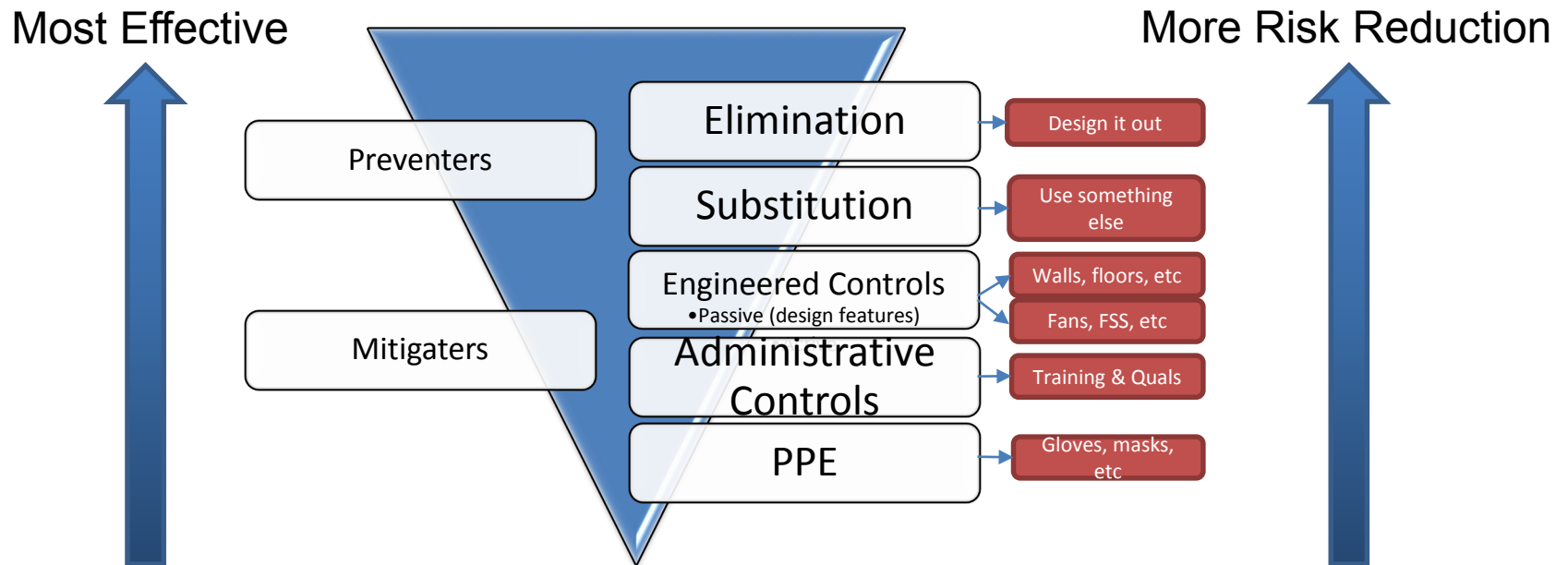


Safety (in general)



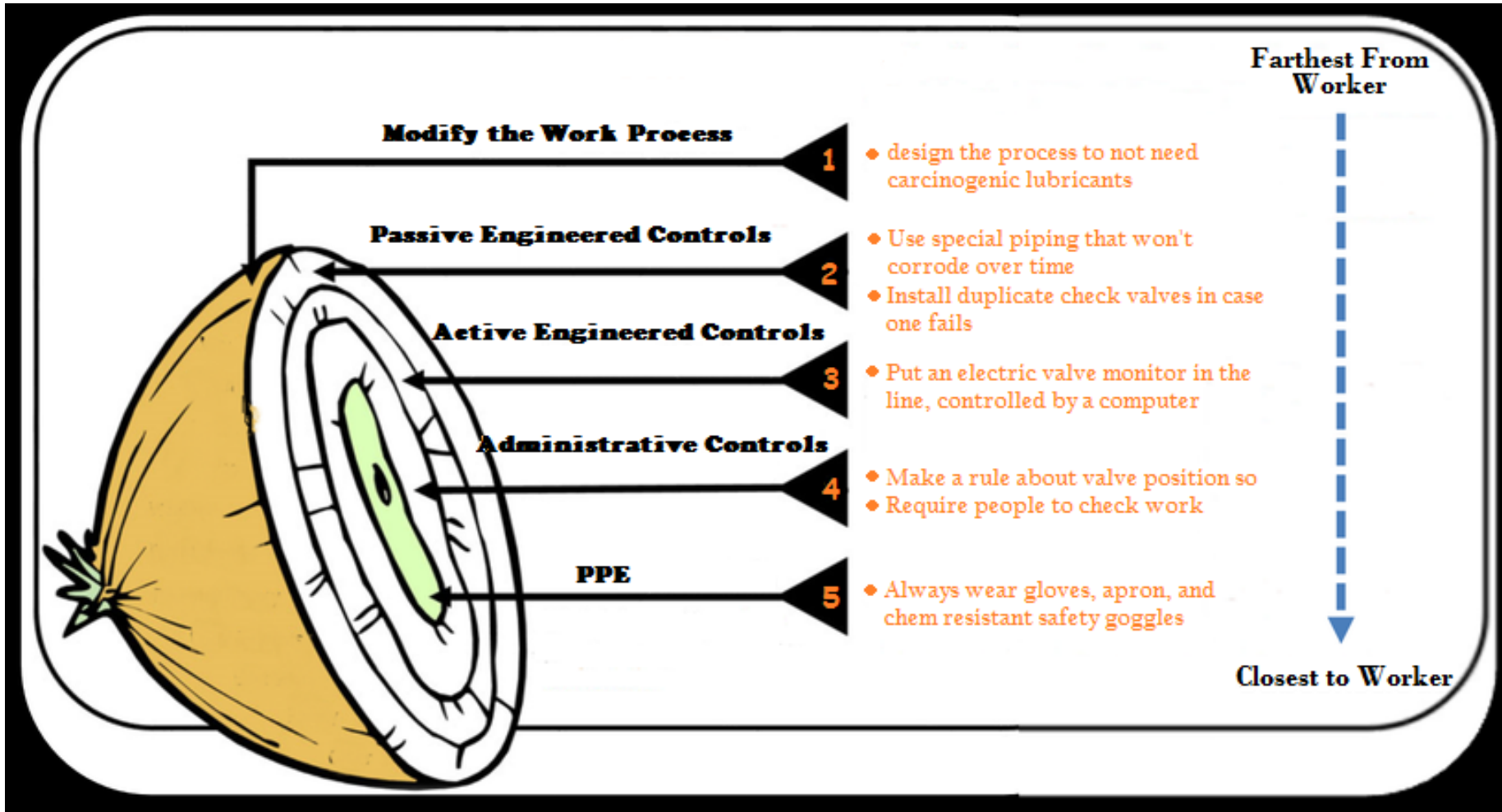


Hierarchy of Controls



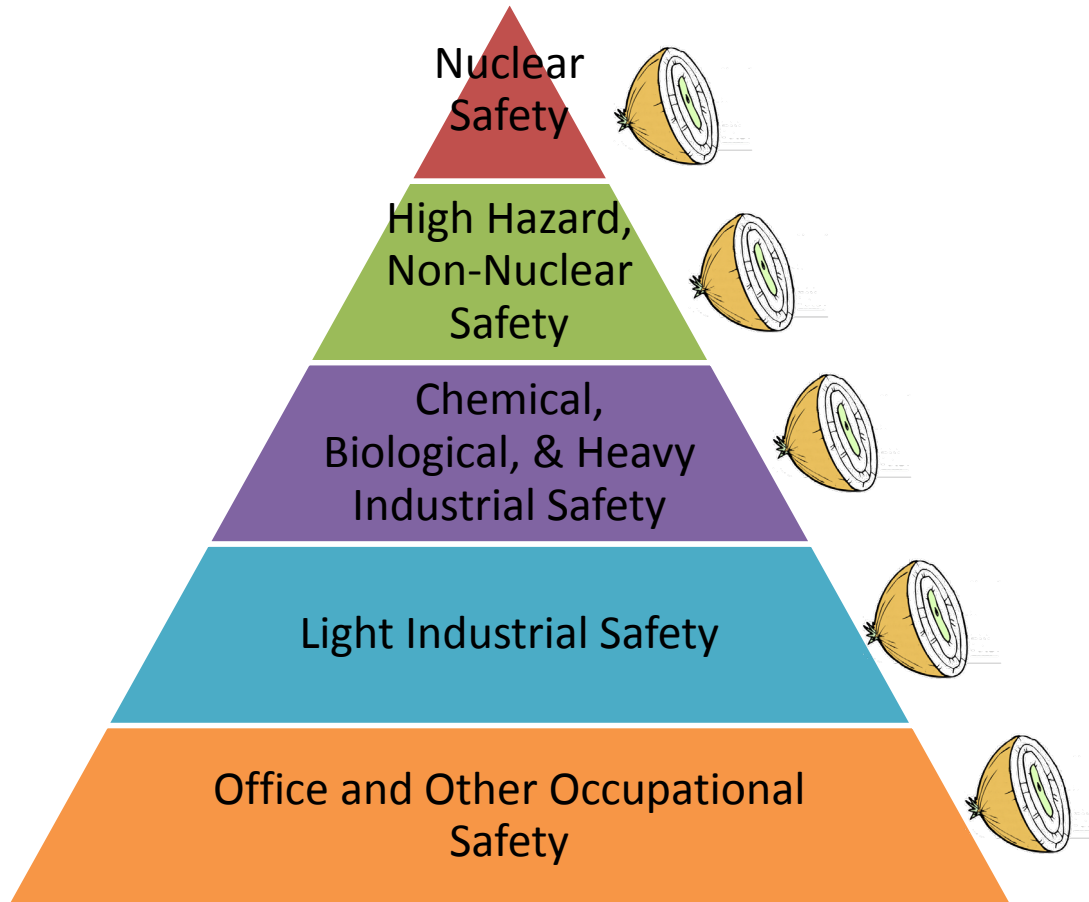


Layers of Protection





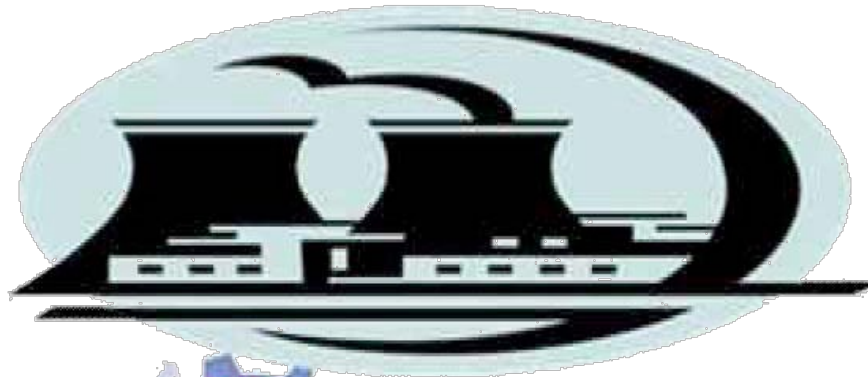
Layers Add on Layers





But wait, there's more!

Equipment Layer



Process Layer



Human Layer



Safety Culture Layer





EM diligently implements and monitors a safety conscious work environment to ensure that not just the physical elements of safety are actualized, but the psychology of safety is realized.



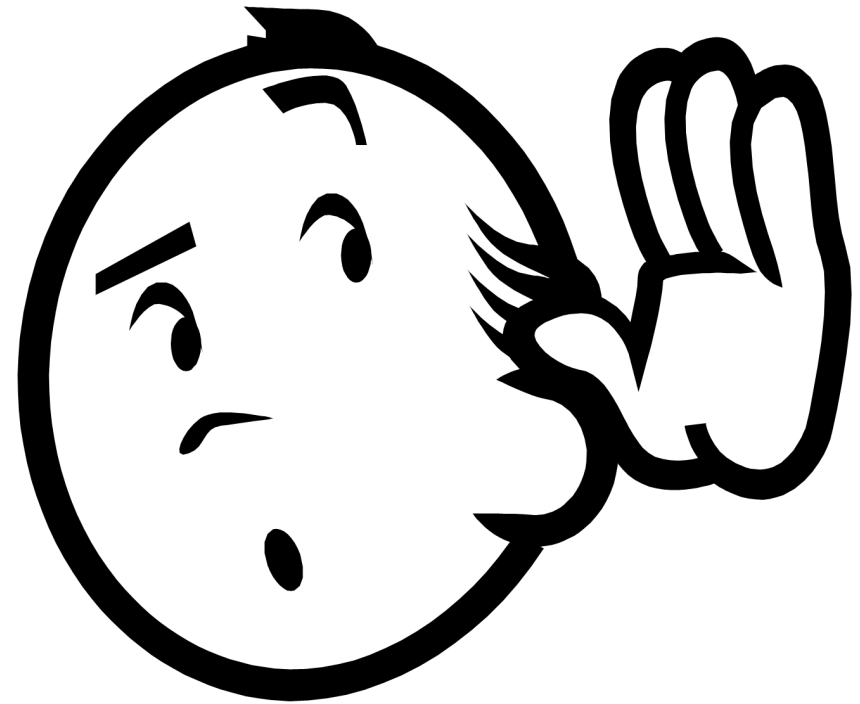


- See something, say something
- Workers own their safety
- No reprisal for alerts to unsafe conditions
- Doesn't just apply to nuclear; applies to all safety
- Anyone can pause work for any reason





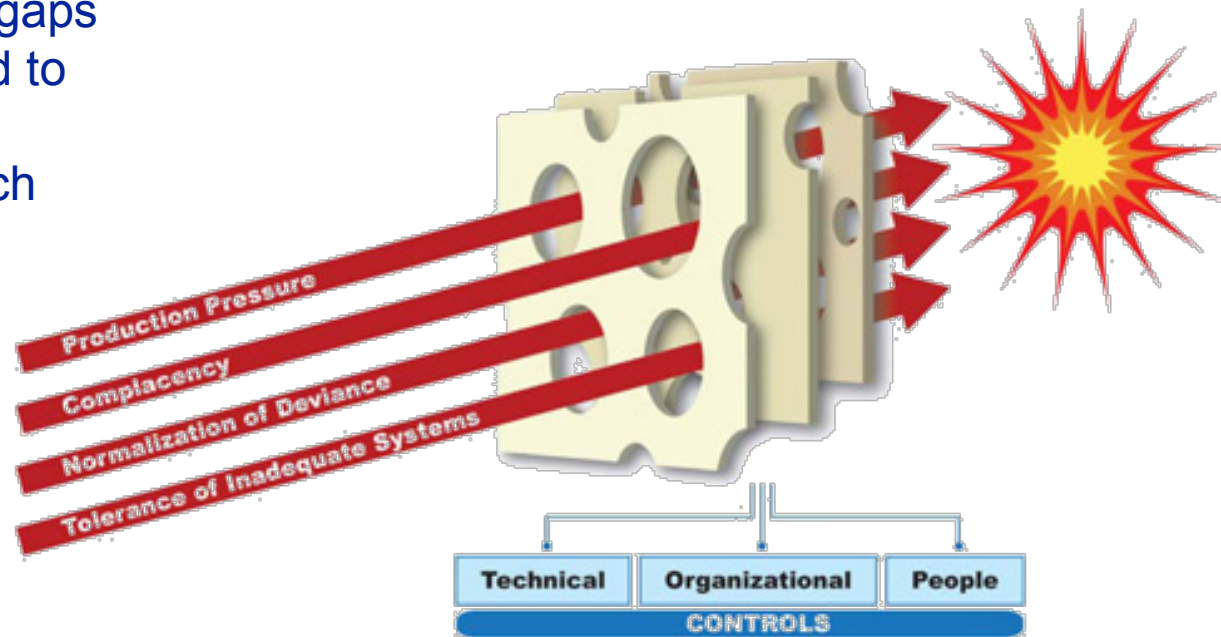
- Management specifically trained in listening skills
- Everyone (feds and contractors) trained in safety conscious work environment (SCWE)
- Staff solicited for safety briefs at each meeting
- Open door policies





➤ Learning Organizations

- Analyze the layers for gaps that can allow a hazard to pass through
- Swiss Cheese approach





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Closing, and Questions!

What can we clarify further?



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