

Safety Culture



**Working on Small Problems Before
They Become Big Problems**

Thomas M. Weishar – Naval Reactors

Biography



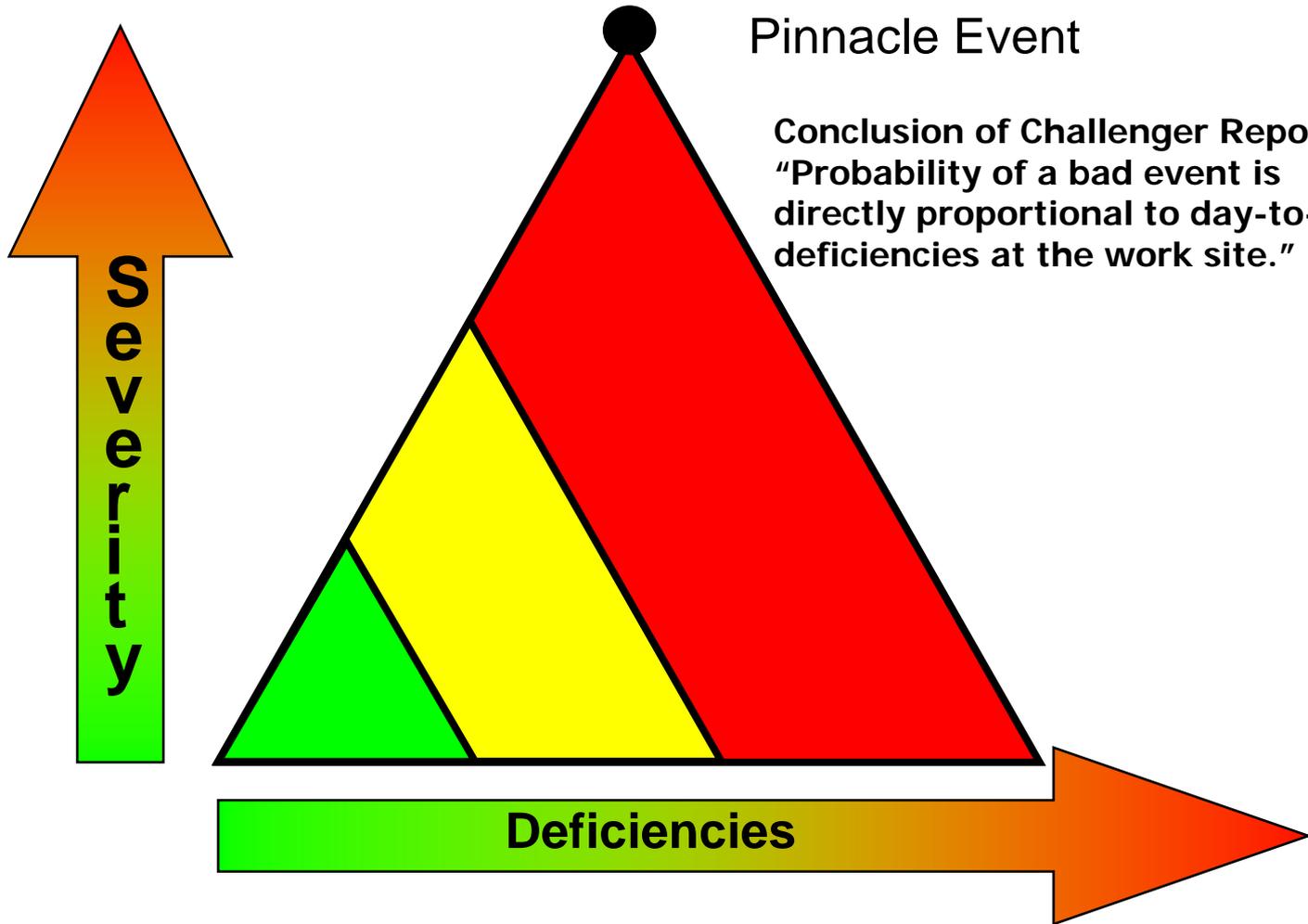
- Thomas M. Weishar
- Born and Raised in Kansas City, MO
- Current Position: Director, Environmental Safety and Health
- Location: Naval Reactors Headquarters, Washington DC
- 23 Years Experience in the Naval Reactors Program
 - Propulsion Plant Operations (12 years)
 - Radiological Controls Program Management and Oversight (8 Years)
 - Radiation Health Program Manager (1 year)
 - Environmental Safety and Health Program Manager and Oversight (2+ years) – Current Position

Naval Reactors



- A joint DOE/Navy Program established to provide militarily effective nuclear propulsion plants and ensure their safe, reliable, and long-lived operation.
- 50 U.S.C. §§ 2406, 2511 and Presidential Executive Order 12344 set forth the total responsibility of Naval Reactors for all aspects of the Navy's nuclear propulsion program
- Naval Reactors provides regulatory oversight of industrial safety at Program DOE laboratories and training facilities.
 - Bettis Atomic Power Laboratory – Pittsburgh, PA
 - Knolls Atomic Power Laboratory – Schenectady, NY
 - Naval Reactors Facility – Idaho National Laboratory
 - Kesselring Site – Ballston Spa, NY (training)
 - NPTU Charleston – Charleston, SC (training)

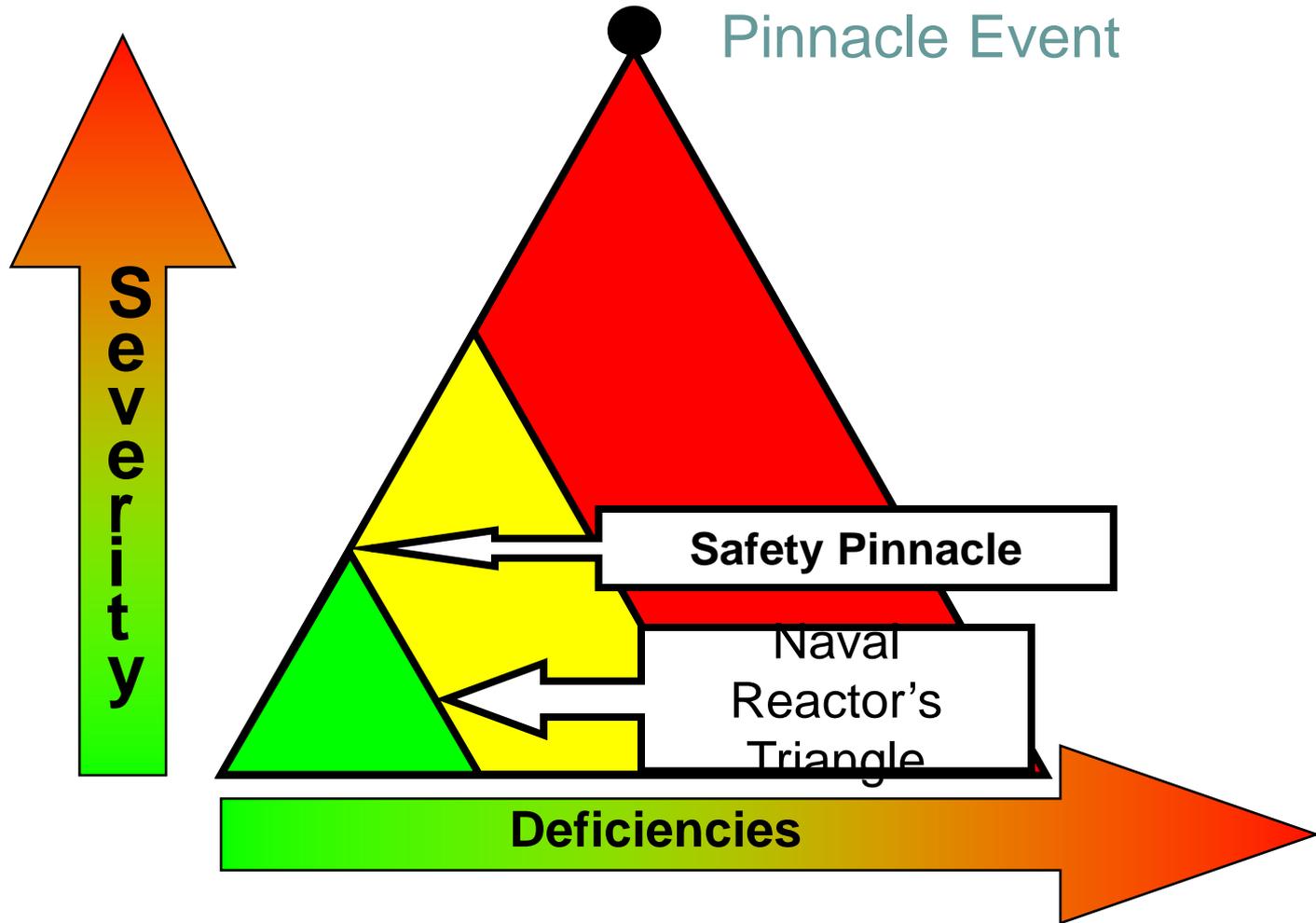
Problem Investigation



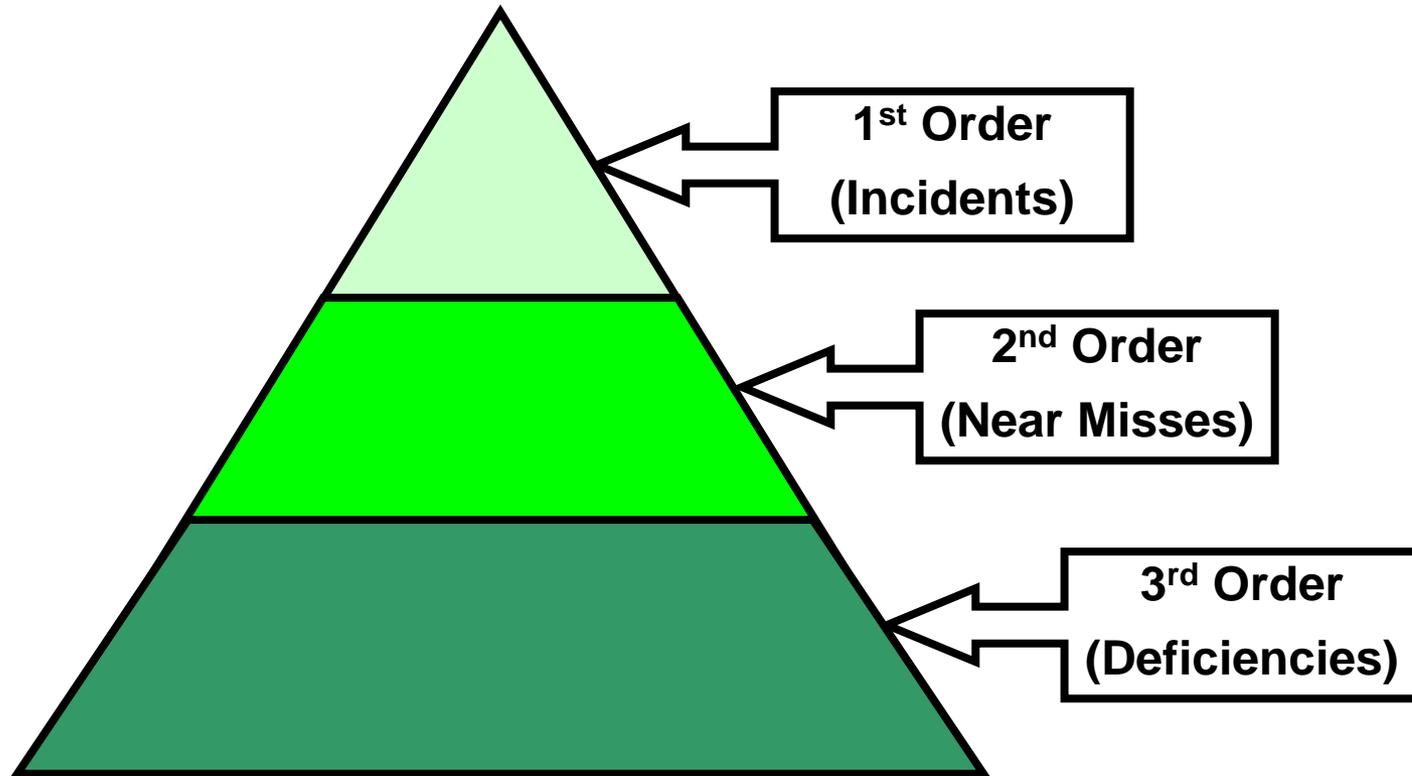
Pinnacle Event

Conclusion of Challenger Report:
"Probability of a bad event is
directly proportional to day-to-day
deficiencies at the work site."

Problem Investigation



Problem Investigation



3rd Order Problems



3rd Order Problem: Deficient Meeting of the Requirement or Standard

- Guard Rail with Minor Damage (not affecting usability)
- Worn Walking Surface Non-skid Coating
- Missing Toe-board
- Damaged Insulation on a Portable Electric Tool
- Damaged PPE (not in use)

2nd Order Problems



2nd Order Problems: A Gift!

Investigated with the same rigor as more serious events but has fewer reporting requirements

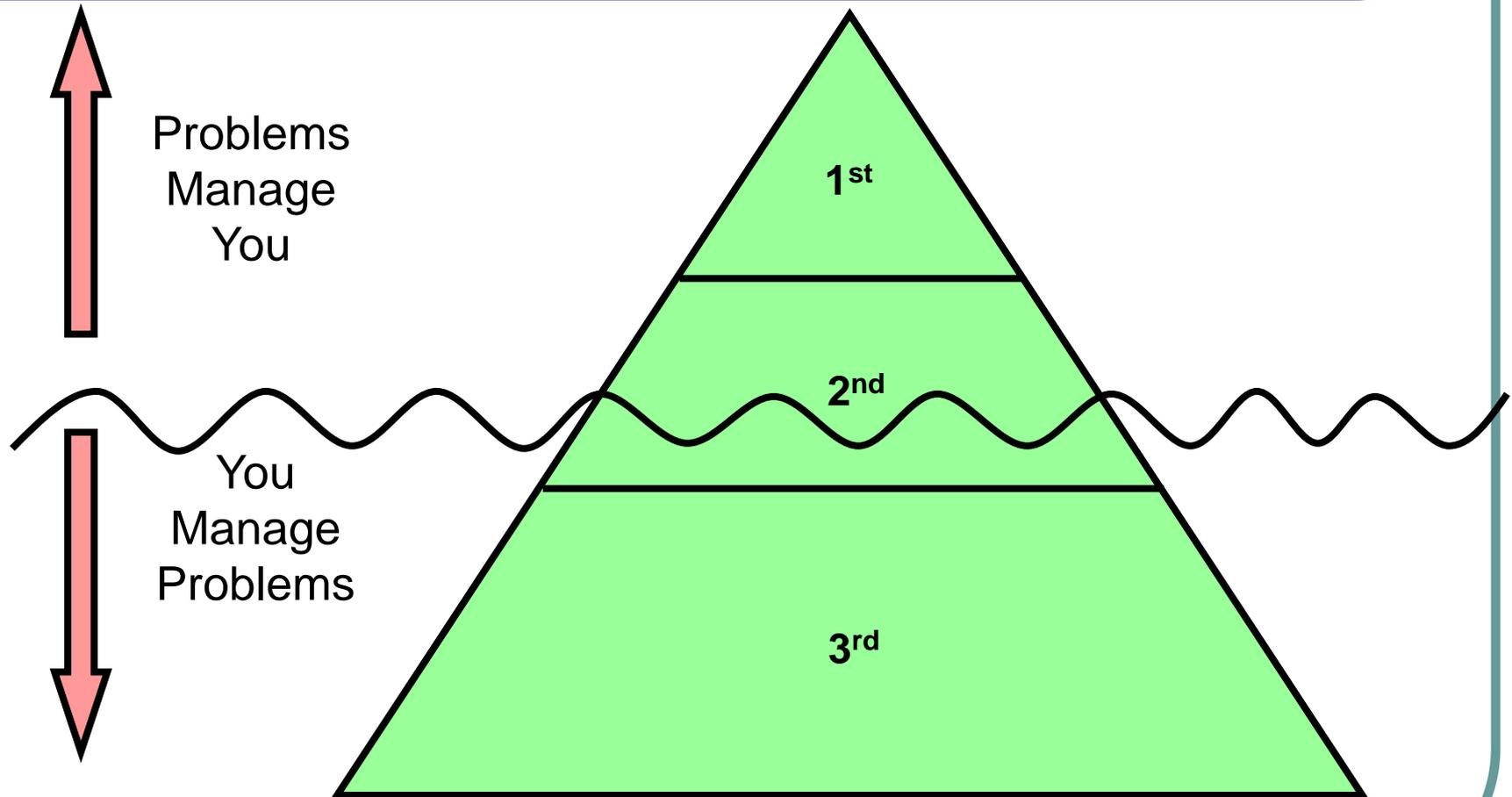
- Inadequate Lockout/Tagout
- Incorrect PPE Worn for High Risk Work
- Inadequate Fall Protection System Established at Work Area (no hazard exposure)
- Recordable Injury with No Lost Work Time

1st Order – Safety Incidents



1. Accident or Injury Resulting in a Fatality.
2. Accident or injury requiring in-patient hospitalization.
3. An acute injury/illness resulting in three or more last work days.
4. An electrical shock during work or caused by defective equipment.
5. Unauthorized entry into an energized electrical enclosure.
6. Work performed on an energized electrical system/component without required work controls.
7. Unexpected hazardous energy discovered after verification checks.
8. Work conducted without the use of required Lockout/Tagout Controls.
9. Removal of Lockout/Tagout Controls prior to restoring system.
10. Work performed without fall protection when required.
11. Any fall from a height greater than 6 feet above the next lower level.
12. Work performed with improperly engineered fall protection systems.
13. Unauthorized entry into a permit-required confined space.
14. A slip, trip, or fall caused by an inadequately maintained surface .
15. Any mechanical lifting operation resulting in a loss of control of the load that did (or could have) cause an injury.
16. Occupational exposure to physical, chemical, or biological hazard that exceeds exposure limits.
17. Any other event, condition, or employee behavior that is judged to be of comparable severity.

Problem Investigation



Switch Theory



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- A diagram consisting of a horizontal black line with five green switches. Each switch is a small circle with a line extending upwards and to the right, representing a closed switch. The switches are positioned at regular intervals along the line.
- When problems occur, there are many causes or “many switches must close.”
 - Human nature causes us to focus on the last switch because it is the obvious cause – “hindsight bias”.
 - A self-critical organization will look for all of the causes or “switches that closed.”
 - Candid and open discussions are required to identify all facts and problems – Naval Reactors activities hold “critique” meetings.
 - Personnel must not feel threatened - Disciplinary actions should not be discussed or taken as a result of the critique meeting.

Incident Reports

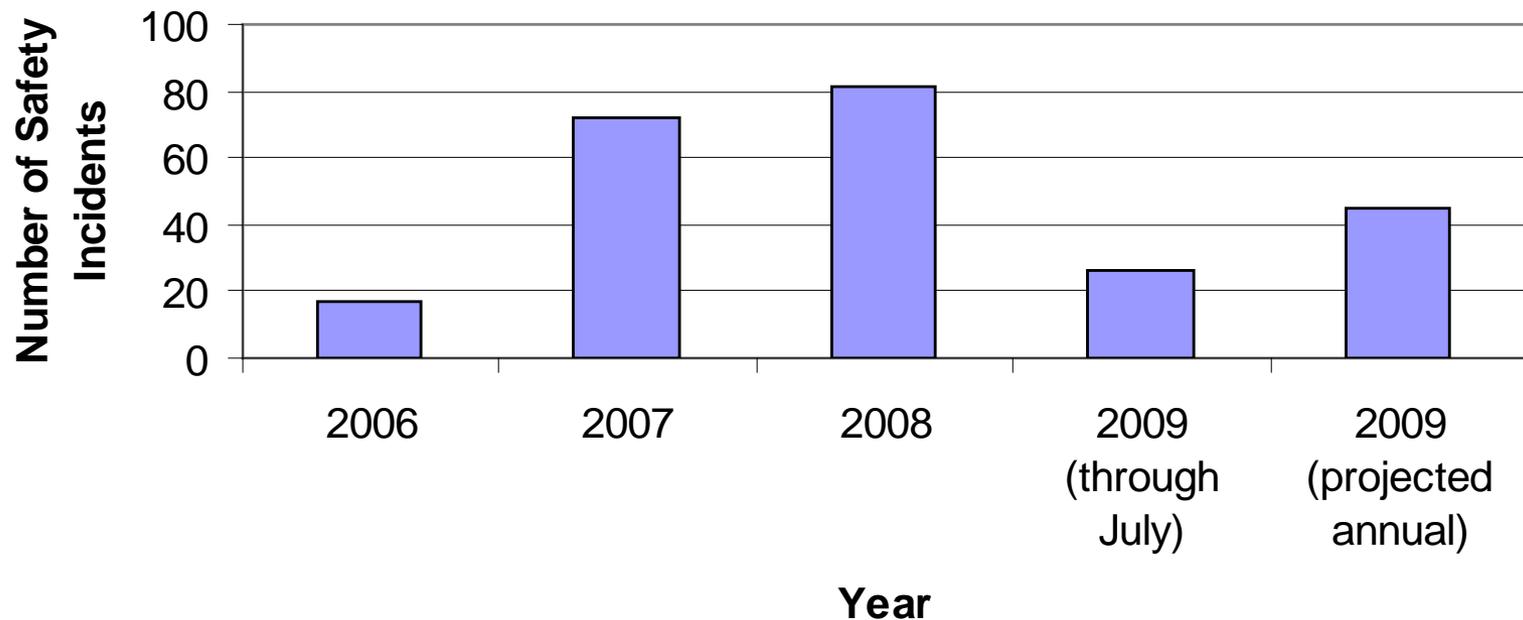


- Submitted to the Director, Naval Reactors
- Distributed to Applicable Naval Reactors Program Activities
- Facts, Problems, Root Causes, and Actions
 - Short-Term Actions: Those actions taken to quickly return to work
 - Long-Term Actions: Those actions taken or planned to permanently correct the root causes
 - Follow-up Actions: Those actions that will be taken to ensure long-term actions were effective

Results – Incident Reports



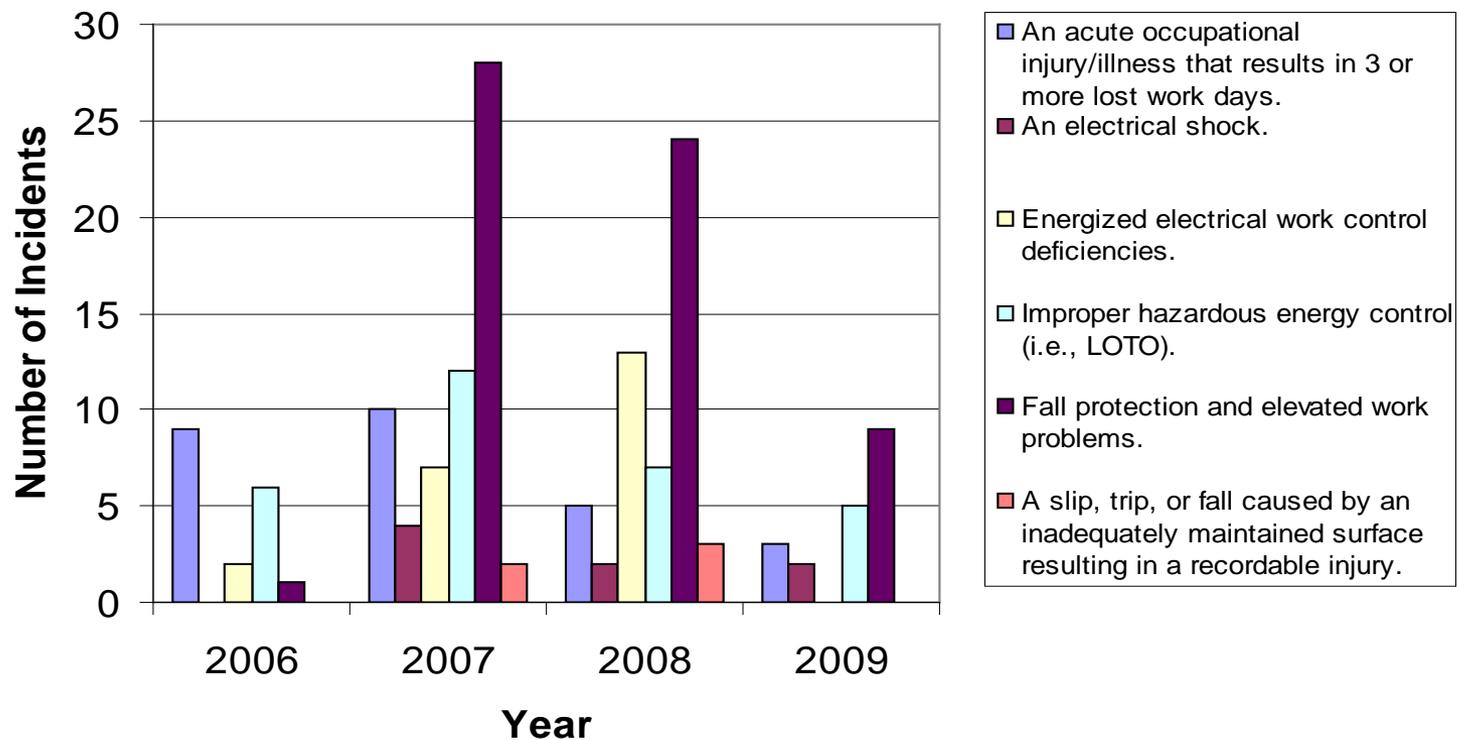
Safety Incidents at Naval Reactors DOE and Training Sites



Results – By Category



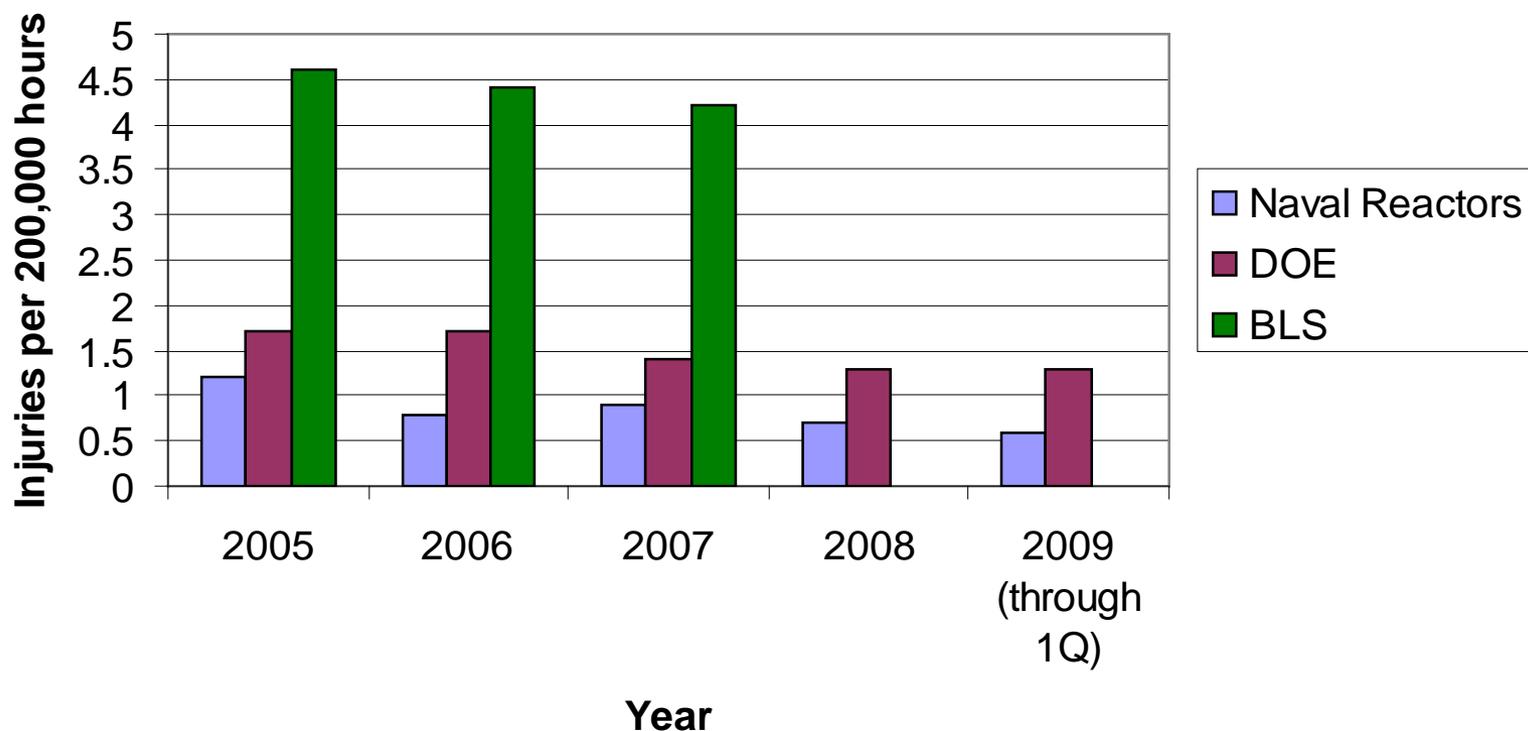
Safety Incidents by Category



Results – Injuries



Recordable Injury and Illness Incidence Rate



Self-Assessment Program



Working On Small Problems (Before They Get Big) Is Not Possible Without A Healthy Self-assessment Program

To be healthy, an Activity must:

- Understand and actively work to correct its significant problems
- Gather data and look for trends to head-off significant problems and improve operations
- Identify and take actions necessary to address potential future significant problems
- Review completed actions to validate they have had the intended effect
- Have active senior management participation



QUESTIONS?