NEI Talking Points

- **Objective: ensure safety while avoiding unnecessary plant shutdowns and diversion of plant resources.**

- Licensees are using the Interim Guidance[1] (procedures and operator training).

- Industry feedback: the Interim Guidance has had a positive impact.

- However, the latest NRC draft of C.11 and C.12[2] appears to differ from the Interim Guidance.

- NRC and Industry need to:
  - Isolate and reach consensus on key terms and definitions.
  - Walk through practical examples of field situations.
  - Consider a formal "process mapping" project to develop a flow chart and time line for compliance with regulatory requirements that apply to through-wall flaws.

- Operability is a TS concept, not a Code concept.

- Code nonconformance does not necessarily mean inoperable. The concept of "Code nonconformance" is different from the concept of "ODP nonconformance."

- A demonstration of "compliance" is not the same as a demonstration of "degraded but functional" (or "degraded but operable"). We need further discussion of the relationship between Code conformance and regulatory compliance.

- Given a flaw, consideration of the Code enters through the structural integrity evaluation:
  - Section III or "construction code" service limits
  - Section XI flaw evaluation

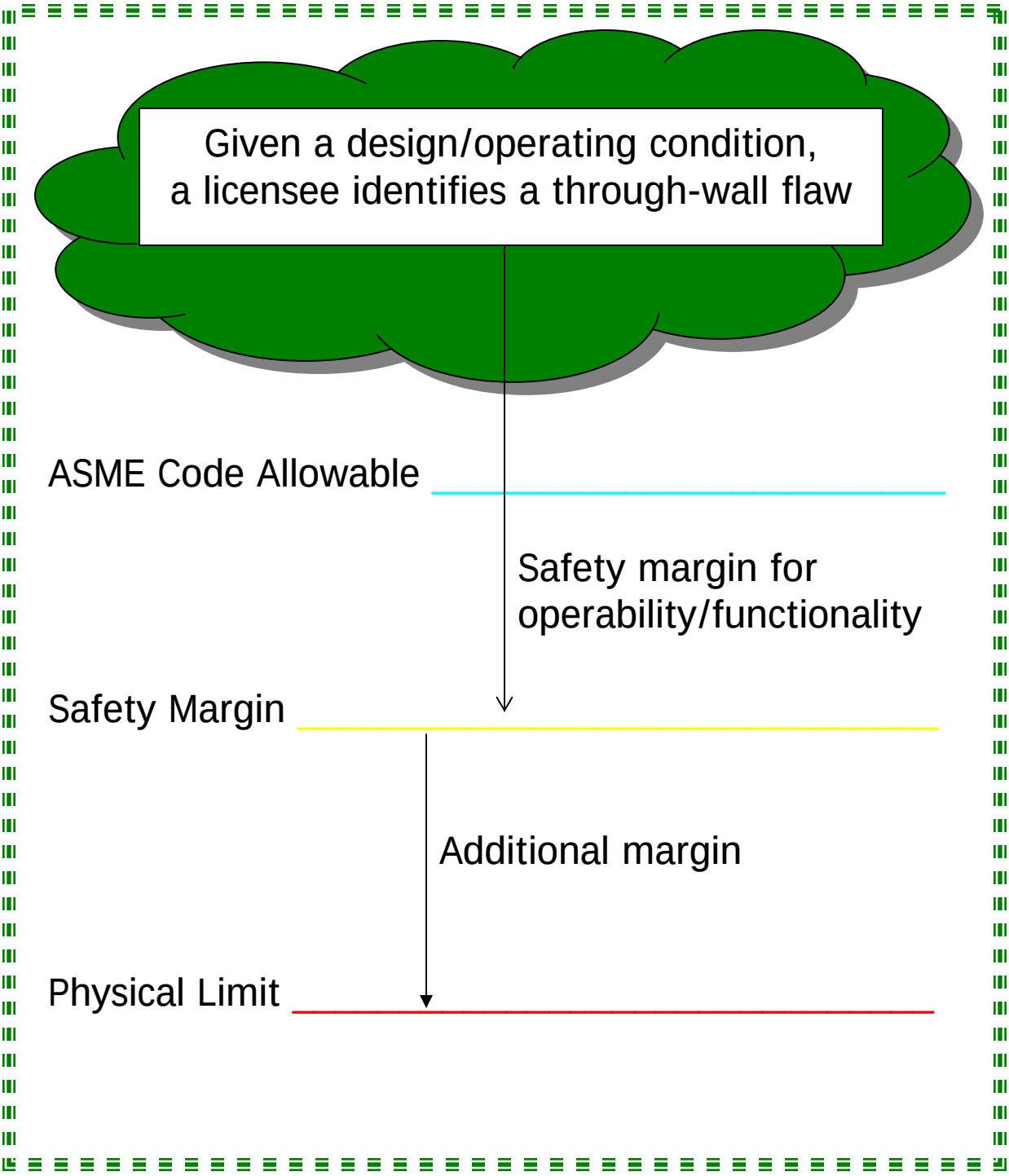
- The response to, and relative impact of, a flaw is the same for both moderate energy and high energy configurations.

- Engineering experience and expertise is a significant factor in the evaluation of flaws.

[1] NRC Memo, E. Collins to NRC Regional Directors, "Inspection Manual Part 9900 Operability Guidance Involving Structural Integrity of ASME Code Class 2 and 3 Piping" June 22, 2007

[2] NRC Letter to NEI, M. Evans to J. Roe, August 14, 2007

Margin Diagram for a Through-Wall Flaw



Immediate Determination (ID) of Operability

1. Refer to NEI White Paper, Section 4.3.1.[3]

2. Establish whether:
   a. The flawed component satisfies applicable Tech Spec requirements
   b. There is "reasonable expectation" that the component is capable of performing its specified safety function(s)[4]

   Apply ODP criteria to ASME Code Class components in the same manner as to other components, including timing

3. Use technical resources (personnel) to assist licensed operators in making the determination:
   a. Plant operating characteristics
   b. Engineering design
   c. Non-destructive examination techniques
   d. Welding techniques
   e. Metallurgical issues

4. Characterize the flaw:
   a. Size, configuration, location, and wall thickness (to the extent practical).
   b. Use visual inspection, physical measurement, or other information
   c. Conservatively bound the affected area
   d. Use NDE if timing is feasible

5. Initial apparent cause based on evaluation of:
   a. Material properties
   b. System service conditions
   c. Inspection records or other available information
   d. Known failure mechanisms
   e. Operating experience
   f. NDE results, if available

6. Initial operational decision considering:
   a. Technical factors listed above
   b. Consequences of leakage
   c. Engineering judgment

[3] NEI White Paper, "Treatment of Operational Leakage from ASME Class 2 and 3 Components," Revision 2, Section 4.3.1, May 2007.

[4] "Specified safety function" is defined in NRC Inspection Manual Chapter 9900: Technical Guidance, "Operability Determinations & Functionality Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety," September 26, 2005.

Prompt Determination (PD) of Operability

1. Refer to NEI White Paper, Section 4.3.2

2. Evaluate the as-found pressure boundary response (stress analysis)
   a. Remaining wall
   b. Affect of defect on pressure boundary

   The construction codes give tools to quantify stresses caused by degradation. Additional (more complex) analysis, not included in the Code, is permitted.

3. Estimate how the defect will behave during continued operation (fracture mechanics)
   a. Environment
   b. Corrosion
   c. Growth rate

   ASME Code Section XI does not apply; however, it contains conservative methods of evaluating flaw behavior that treat flaws like cracks.

4. Assess functionality (non-Tech-Spec components) or operability (Tech-Spec components) of the hardware
   a. Not a compliance evaluation
   b. An operability/functionality evaluation
   c. Exceeding Code allowable does not preclude a conclusion of operability/functionality

5. Document the assessment results

6. Operational decision
   a. Degraded, but operable/functional (continued operation + follow-up action)
   b. Inoperable/Non-functional (action in accordance with regulatory requirements and/or Tech Specs; possible shutdown scenario)

7. Follow-up monitoring
   a. Use as is
   b. Repair