

LICENSING MODERNIZATION PROJECT FOR OPERATING REACTORS

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PURPOSE

1

FFR Scope

2

PHASE

PHASE

Discussion

Feasibility

Overview

Results

Discussion

Scope

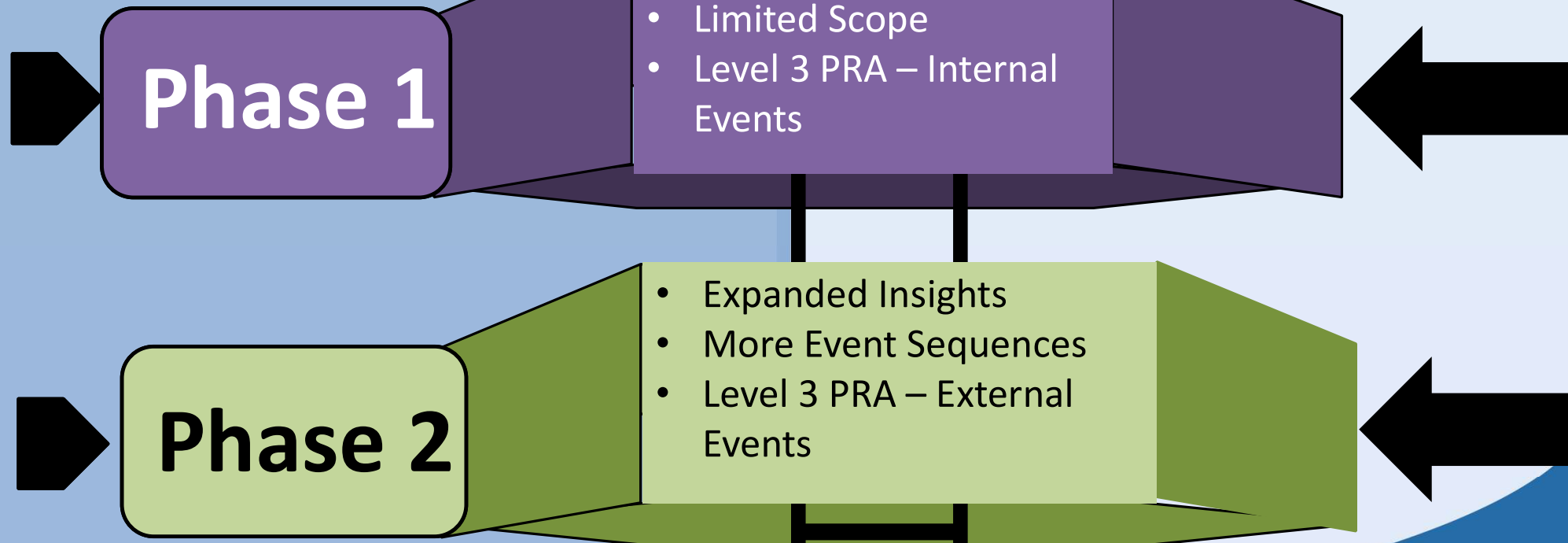
Path
Forward

Regulatory Support

Discussion

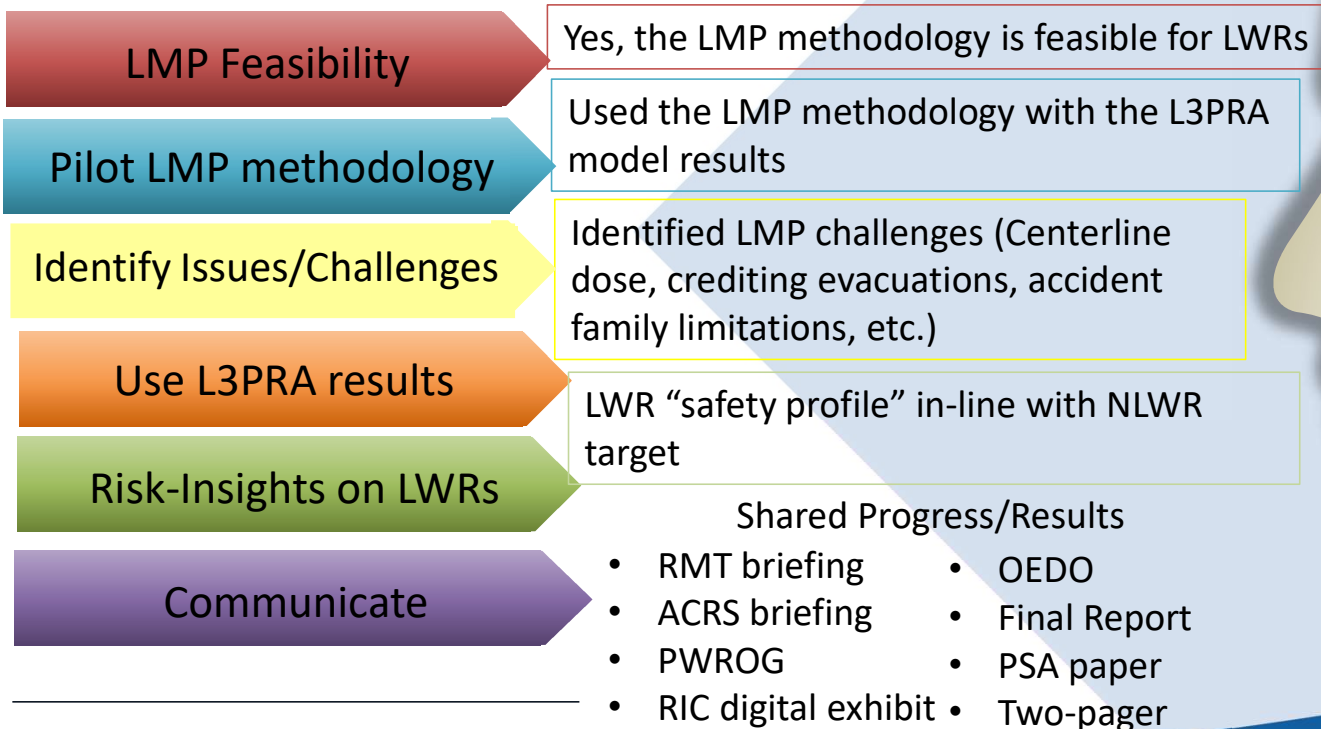
Proposals

FFR SCOPE



OBJECTIVES: LMP for Operating Reactors

Limited Resource
project to support
future NRC needs



Technical Approach

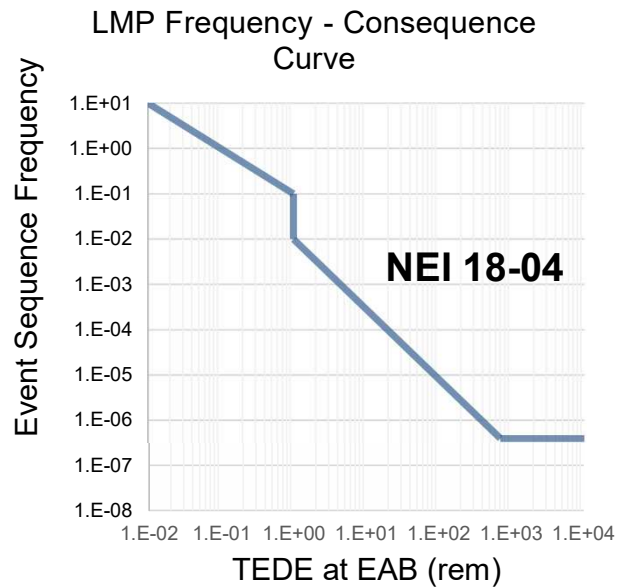
Severe Accident Research

LWR Experience

Risk-Informed and
Performance-Based

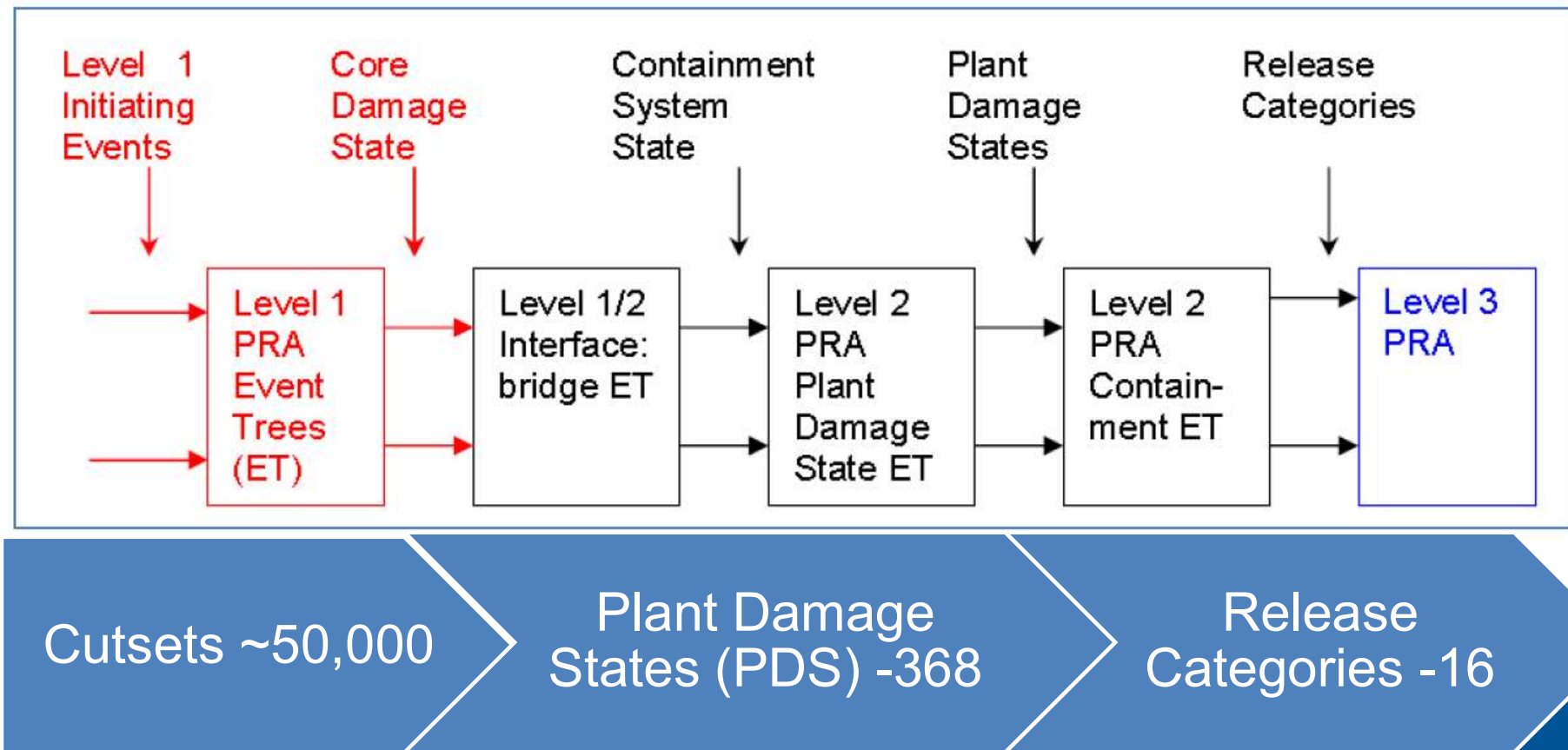
Non-LWR licensing

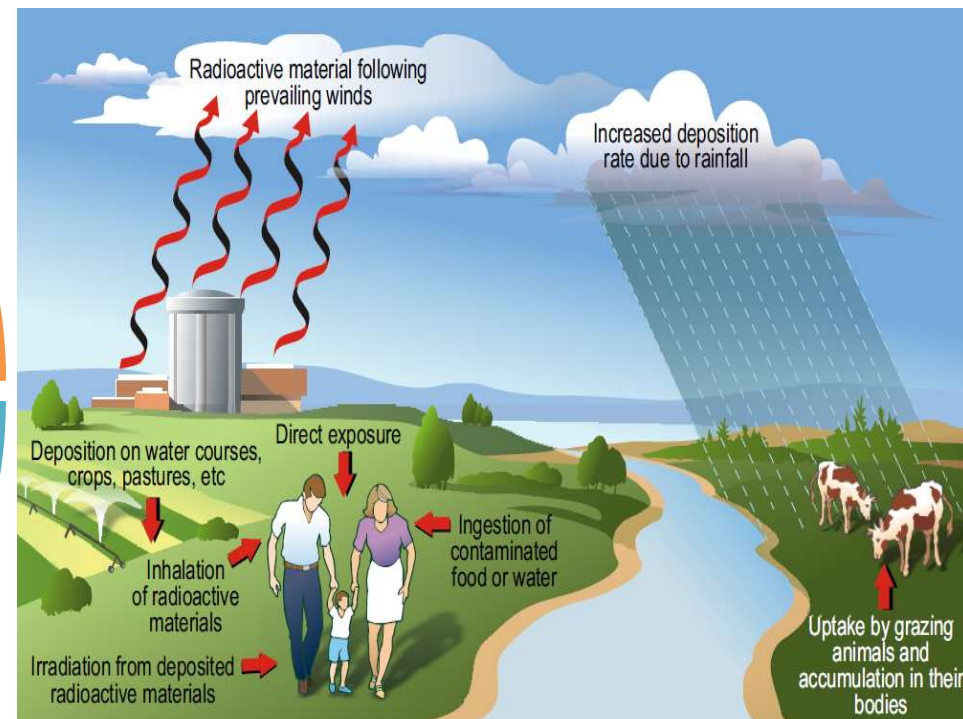
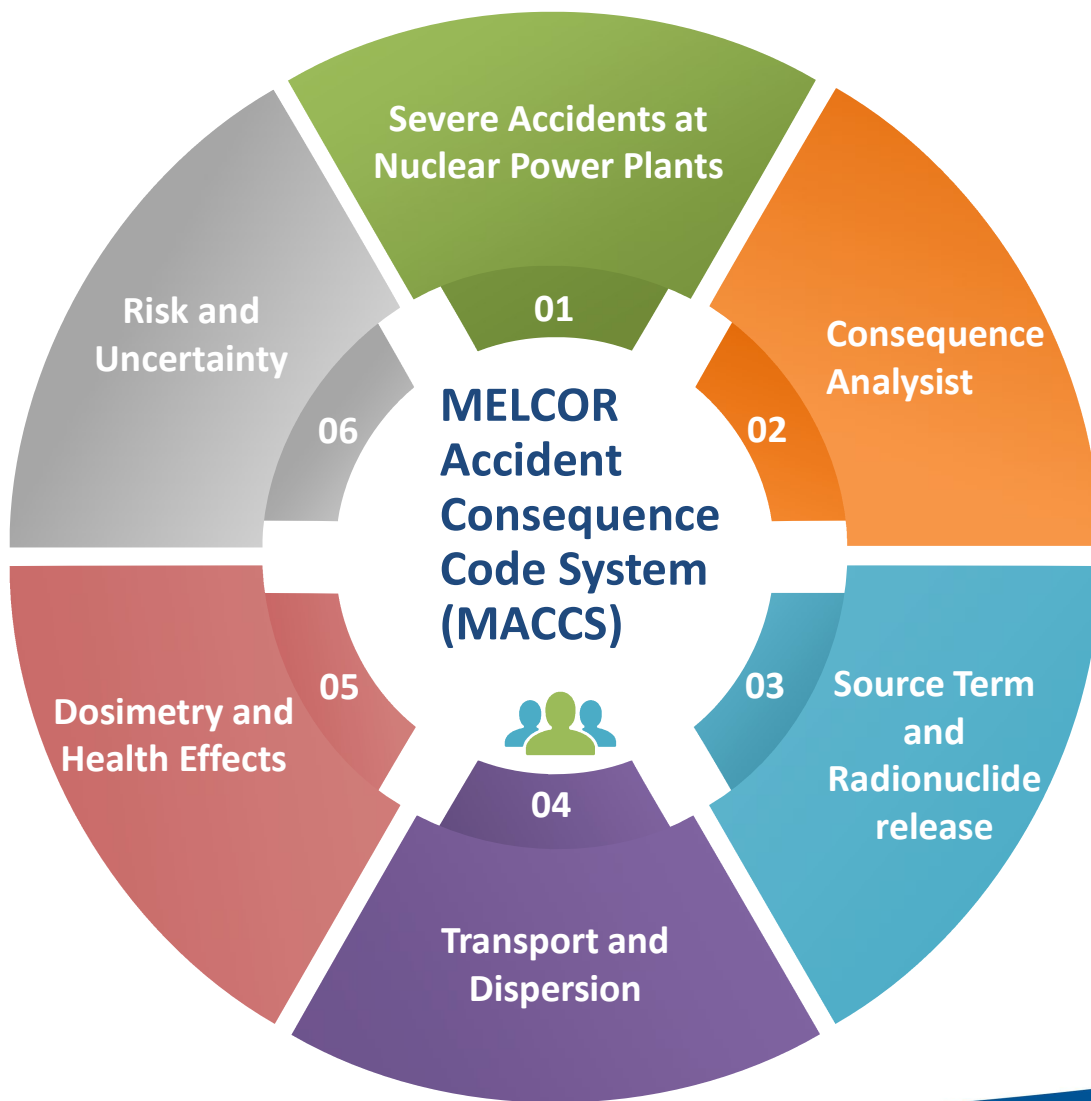
NRC Level 3
PRA Model



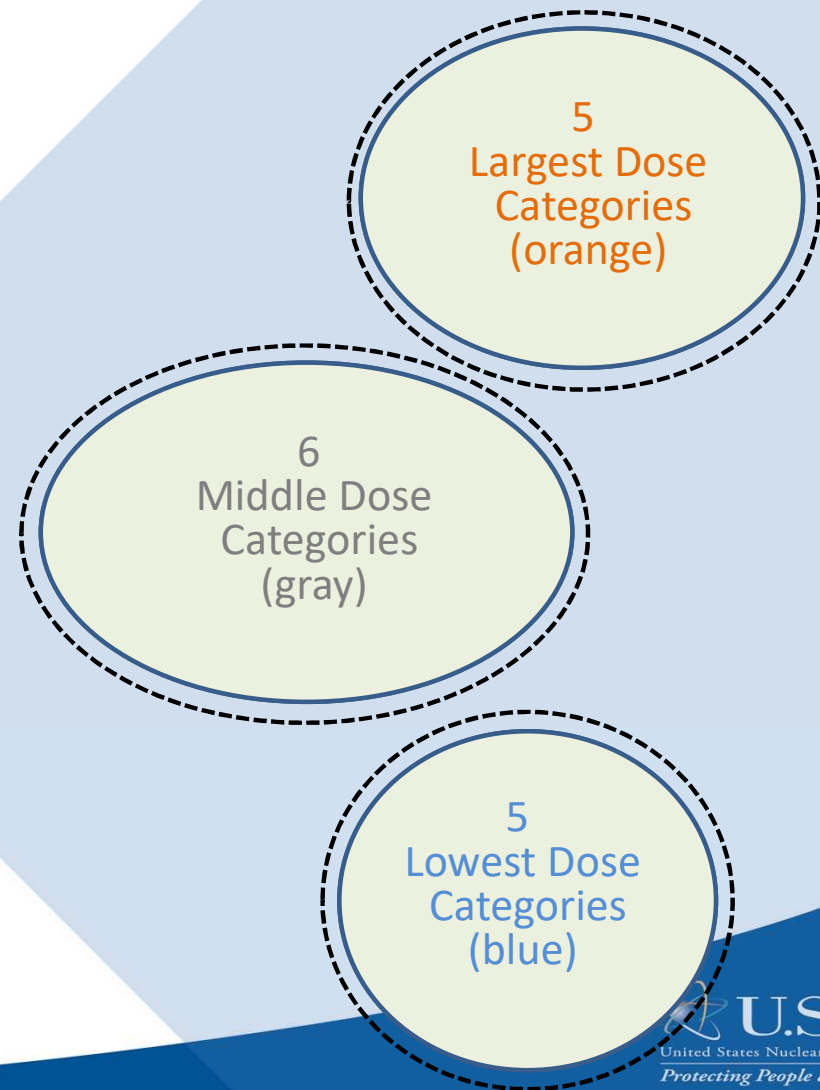
LMP
Methodology

Level 3 PRA (L3PRA) Process

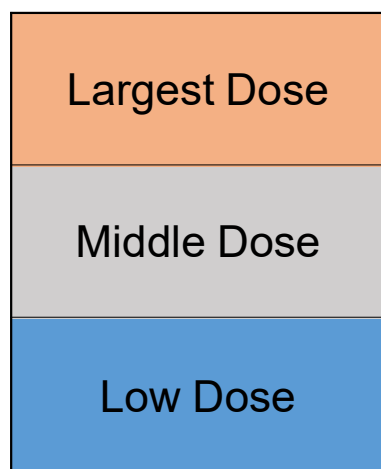




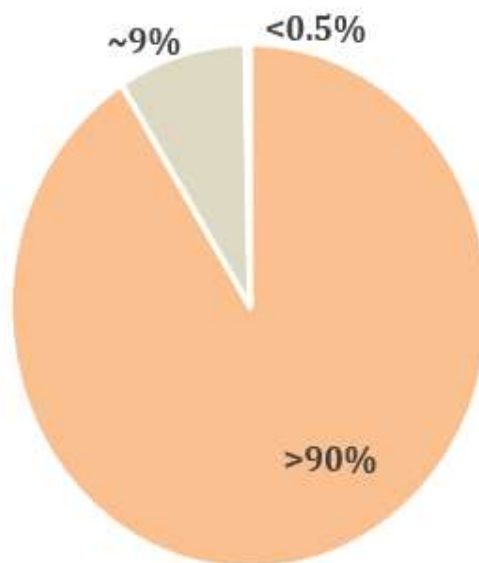
Release Categories



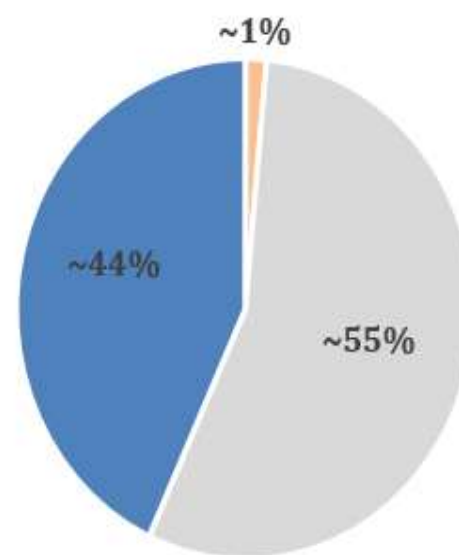
Release Category Contributions



Dose Contributions



Frequency Contributions



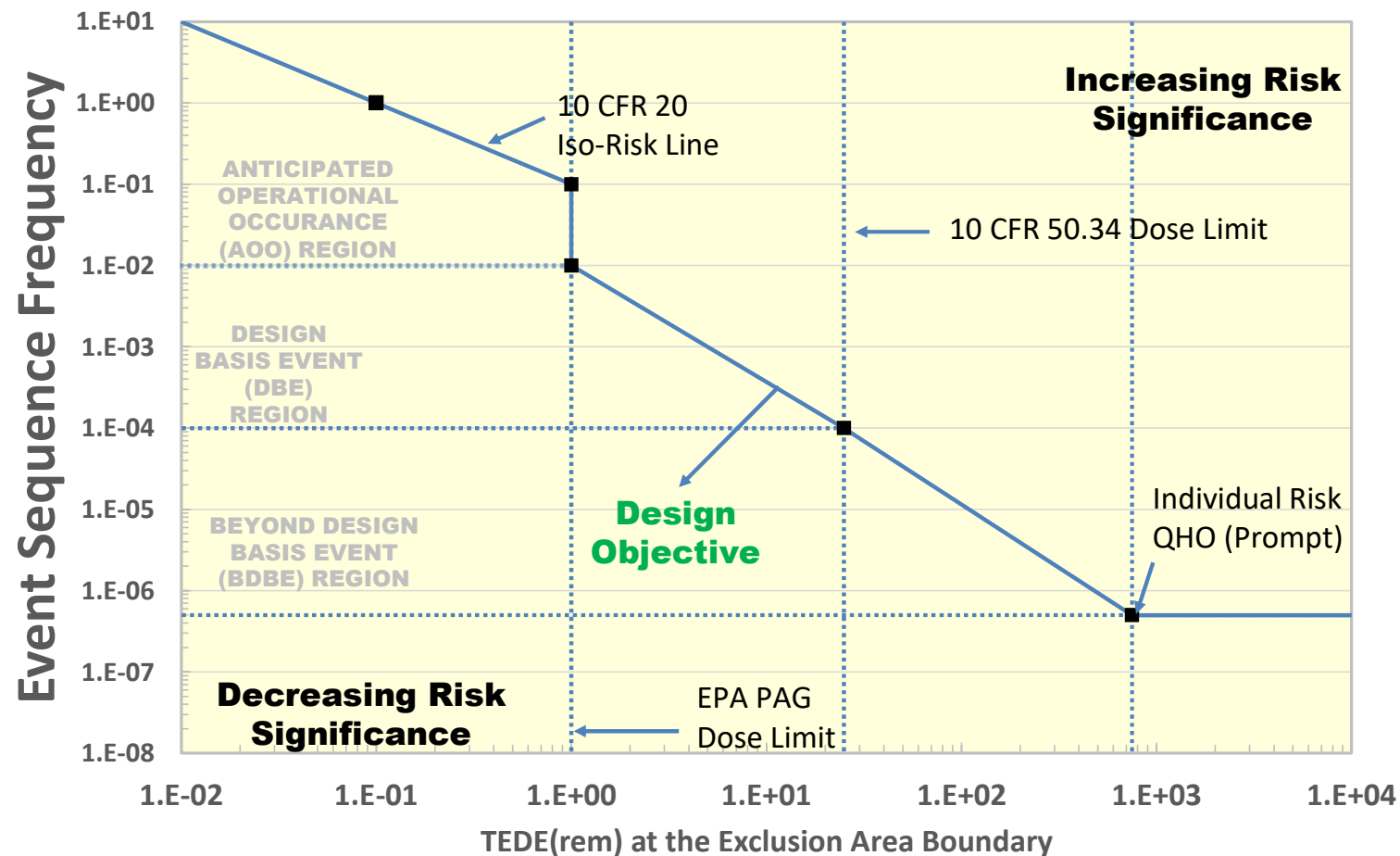
■ Largest 5 categories ■ Middle 6 categories ■ Lowest 5 categories

Basic LMP Frequency-Consequence Curve

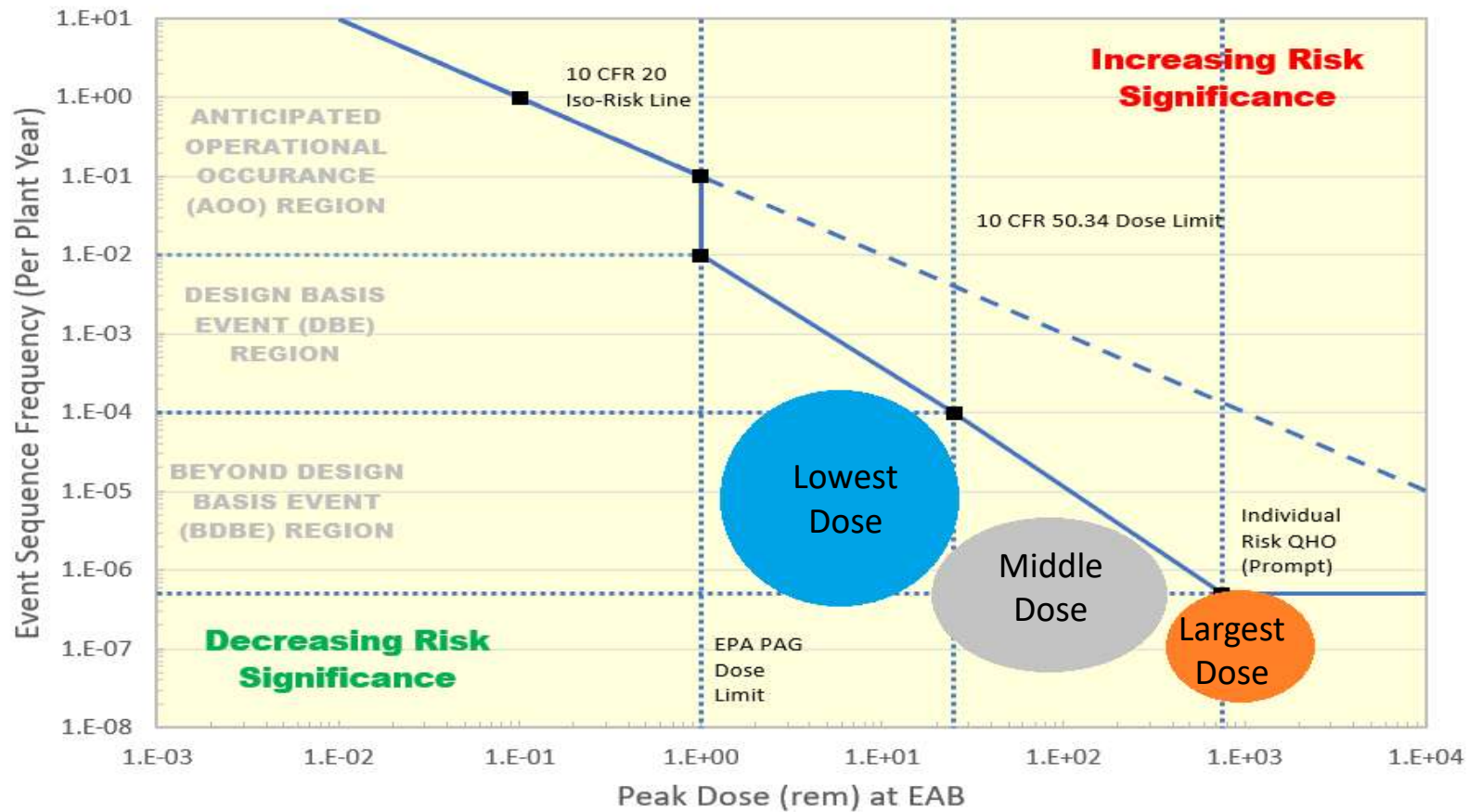
Selection of Licensing
Basis Events (LBEs)

Safety Classification
of Structures,
Systems, and
Components (SSCs)

Determination of
Defense-in-depth
(DID) Adequacy



LMP Frequency – Consequence Comparison



Reports/Papers

- Final Report
- PSA paper
- Two pager

Communication

- RMT briefing
- ACRS briefing
- PWROG briefing
- OEDO
- RIC digital exhibit

NWLR Licensing Insight

- Understand LMP upfront
 - 30-day TEDE, EAB, etc.

LMP Challenges

- Is TEDE the centerline maximum dose? (averaged???)
- Is evacuation ignored?
- Limitations on accident families?

Operating Reactors

- In-line with NLWR guidance
- Consistent with historical perspective

**LMP Methodology
can be used beyond
the original intent**

**Insights for
NLWR licensing**

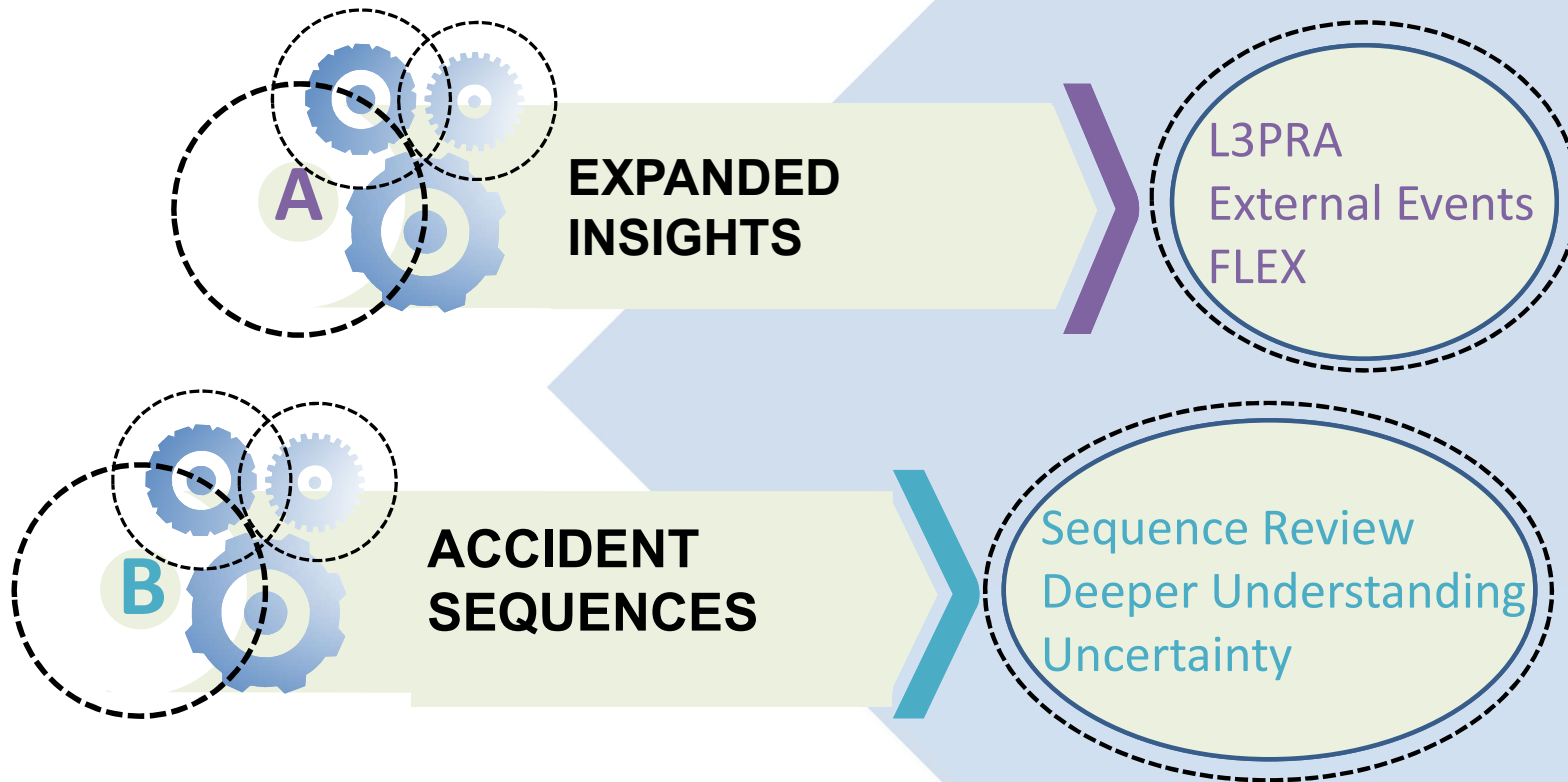
**Operating
Reactor Safety
Insights**

Opportunities

- NLWR Licensing
- Risk-Informing CH 15 Accident Analysis
- Licensing
- Oversight

PHASE 1 CONCLUSIONS

PHASE 2



RES SUPPORT

(LMP use in regulatory framework)



Now



Risk-Informed
Regulator

PROPOSALS

- Rely on deterministic approaches
- May not explicitly rely on risk-insights
- Develop tools to better focus on risk-significant aspects

- Risk-Inform CH 15 analysis
 - 2 Approaches
- NLWR Licensing Support

- Rely on risk-insights
- More efficient reviews
- Focus on risk-significant accidents

CH 15 Accident Analysis Research Options

Approach 1

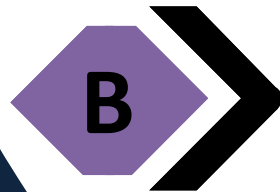
- Use LMP F-C chart
- Categorize accidents
- Distance from the F-C target

Approach 2

- Map consequences to Level 1/LERF risk metrics
- Find Correlations
- Use Level 1/LERF risk metrics to categorize

NEXT STEPS/QUESTIONS

PHASE 2 of the LMP for
Operating Reactors



Program Office
Engagement

Continue Communication Effort

- Briefings
- Conferences

