



LMP for Operating Reactors: Seeing Risk Insights Through a New Lens

Licensing Modernization Project (LMP)

The LMP methodology supports licensing-basis development for non-light-water reactors through—

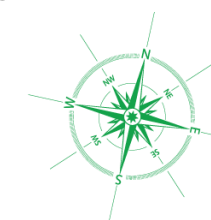
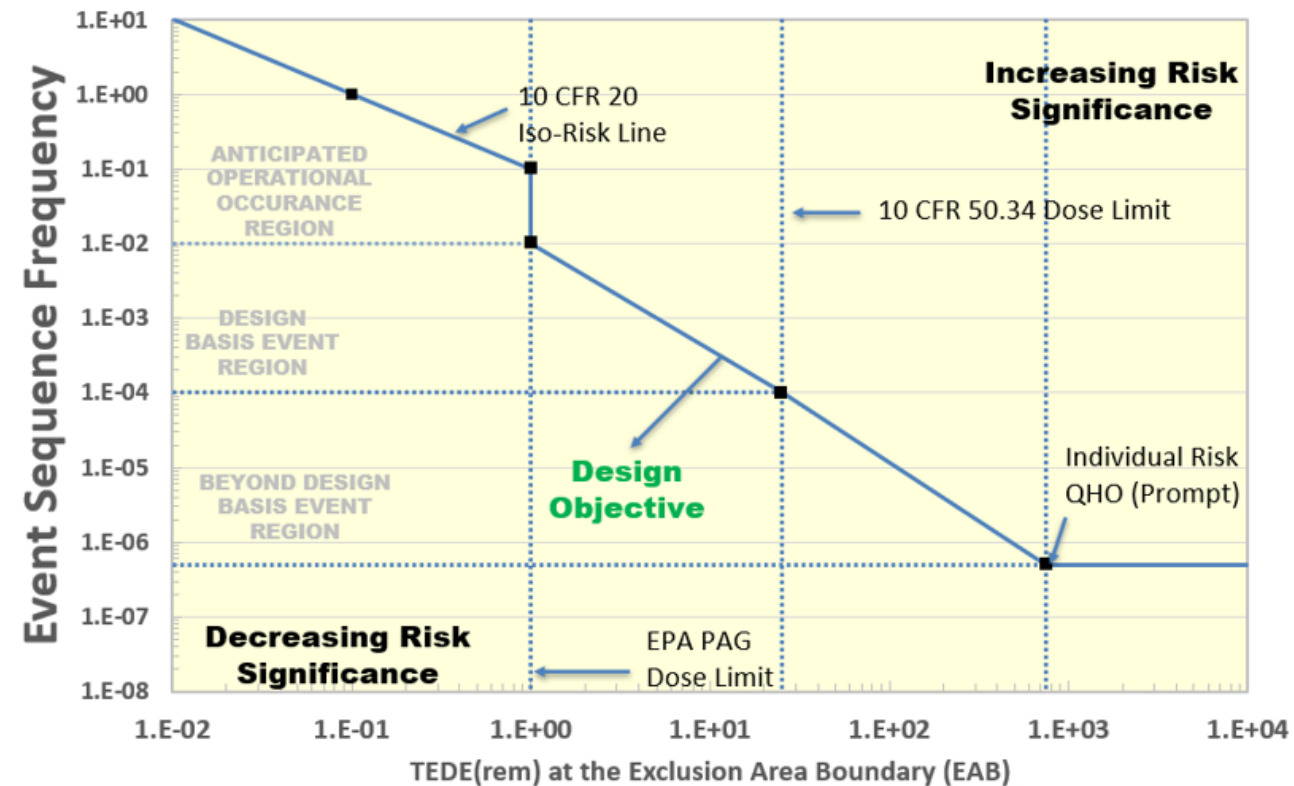
- selection of licensing-basis events
- safety classification of structures, systems, and components
- evaluation of defense-in-depth adequacy

Operating Reactors

Operating reactors have a successful history of leveraging risk insights and risk tools to support licensing, oversight, and operations applications.

The LMP methodology is a technology-inclusive approach that could provide additional risk insights to support operating reactors but is not currently envisioned for initial licensing of light-water reactors.

Office of Nuclear Regulatory Research

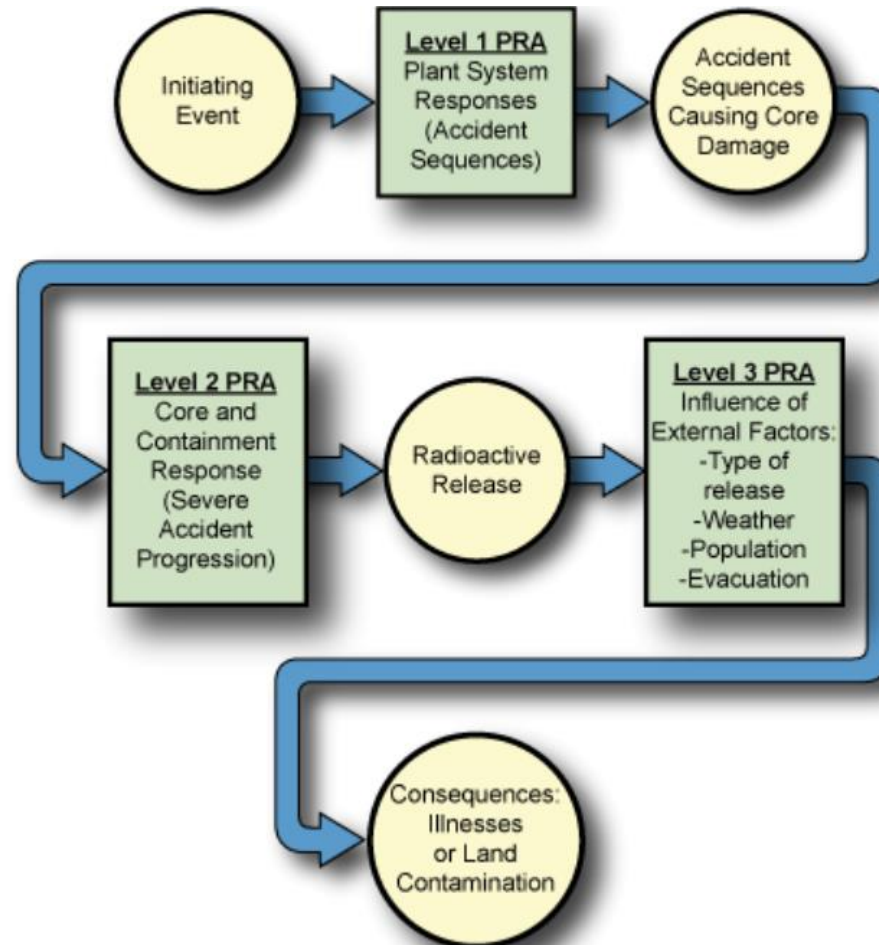


NAVIGATING the
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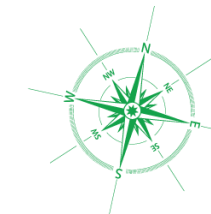


NRC Level L3PRA Project

The LMP methodology uses risk metrics that are derived from a level 3 probabilistic risk assessment (PRA) model. The NRC staff have developed a level 3 PRA model for a pressurized-water reactor design.



The results from the NRC's L3PRA model were used to evaluate the feasibility of the LMP approach for operating reactor technology.

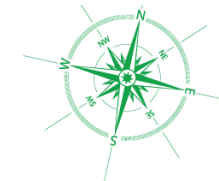
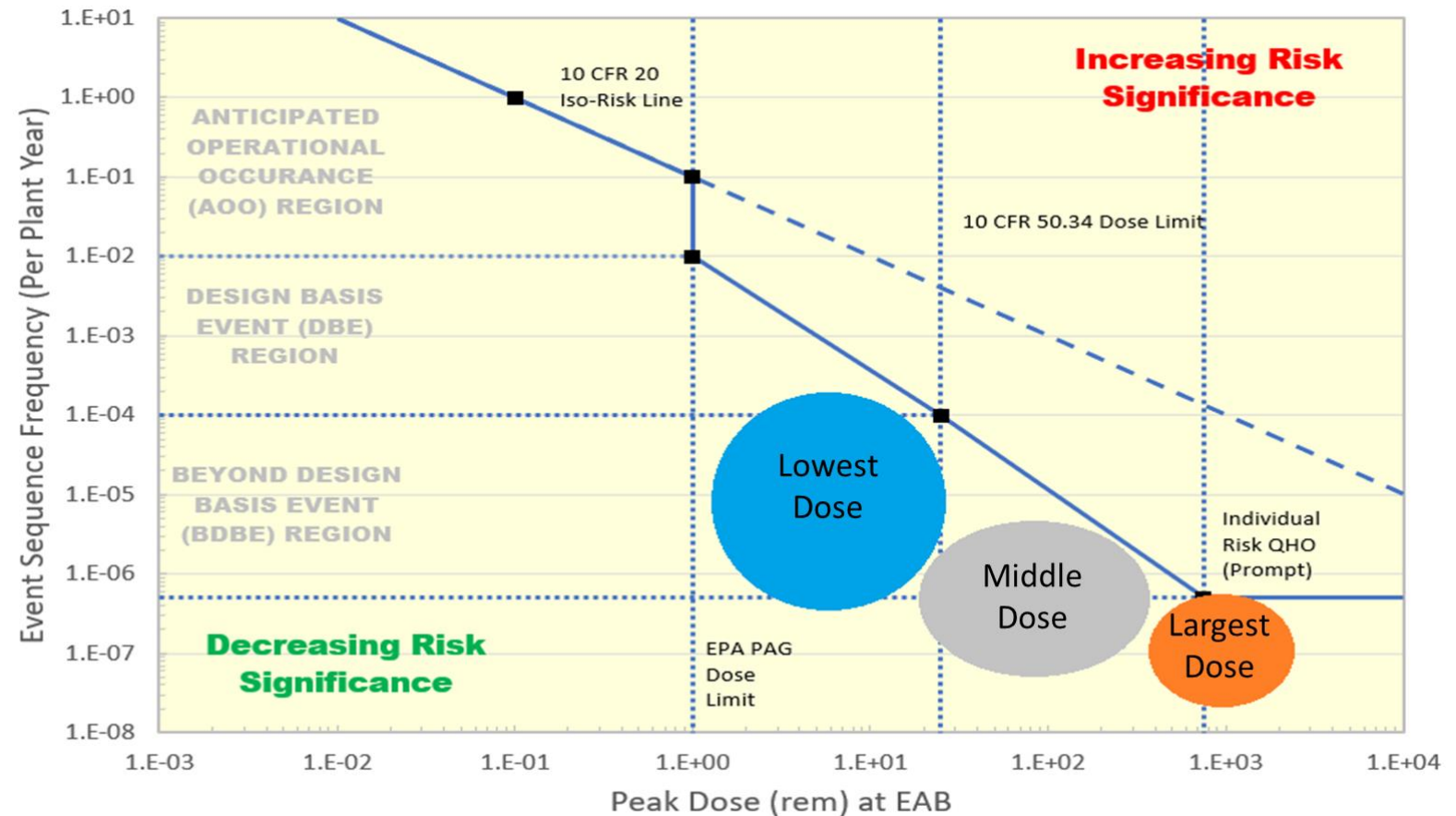




Results

The NRC's L3PRA model results were used to generate the peak dose in rem at the exclusion area boundary (EAB).

The L3PRA model results were then split into three groups depending on their dose at the EAB. These groups were then plotted on the LMP's frequency-consequence curve.





Conclusions

Useful for Operating Reactors

This research project showed that the LMP methodology may be useful beyond the original intent for non-light-water reactors and could provide additional risk insights for operating reactors.

Future Opportunities

This research highlighted the future opportunities for expanding the use of the LMP's methods and tools.

Operating Reactors Safety

The results from this research project confirm that the safety profile for this modeled reactor design is consistent with our current understanding.

Advanced Reactors

This effort provided the NRC staff with opportunities to develop more familiarity with the LMP methodology and will help in supporting future advanced reactor licensing.





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