Vendor's Perspective on the Options for Risk-Informed Guidance for New Reactors

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imagination at work

Vendor Perspective

Regulatory credit should be given to passive plants because they pose less risk to the public.

Design focus is also applied to:

- ***Reducing abnormal operating event frequencies, and***
- ***Controlling and limiting abnormal events if they occur.***

Vendor Perspective, cont.

Measuring safety changes in passive plants should consider a tiered approach, similar to Regulatory Treatment of Non-Safety Systems (RTNSS).

Evaluate core damage frequency, etc., by not crediting passive systems and determine nonsafety related system risk importance.

Vendor Perspective, cont.

Consider evaluating core damage frequency, etc., by not crediting passive systems and determine nonsafety related system risk importance.

Measure safety changes relative to systems important for reducing abnormal operating event frequencies and controlling and limiting abnormal events if they occur.

Passive Safety Features

Reduce risk significantly, e.g., Gravity Driven Cooling or Passive Residual Heat Removal

Analogous to car airbags

However,

Plant design features should allow the control room to prevent the conditions that require passive actuations

Design for Operability

Plant operators cannot bank on the passive safety functions while neglecting prevention, control and limitation systems

- ***Don't ignore the condition or use of seatbelts just because airbags might function to prevent injury***

Design for Reliability

Reliable performance of systems and components that prevent, control or limit abnormal events

- ***Maintain the brakes, seatbelts and good driving habits***

Maintaining high availability = fewer initiating event challenges

Design for Reliability, cont.

RTNSS is applied to plant operational activities through the Design Reliability Assurance Program

Ensures that risk significant plant features in the design analysis are maintained throughout the life of the plant

Design for Prevention, Control and Limitation

- Plant operational design considers similar concept: Design with passive systems, but focus on abnormal event prevention, control and limitation
  - Allows control room to use active systems to preempt automatic safety function actuations

Design for Prevention, Control and Limitation, cont.

- ***Use of active mitigation systems provides more operator control of plant conditions***

Performance of important active systems is monitored and controlled by the Maintenance Rule process

Conclusion

Passive plant safety should be measured against the absolute public safety goals.

Regulatory attention to active functions that prevent, control and limit abnormal events ensures acceptable performance.