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Re-Inventing Risk Informed Decision Making

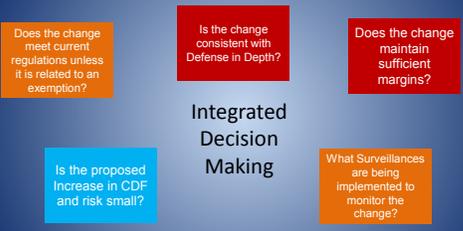
US NRC Regulatory Information Conference
March 12, 2014

Roy Linthicum
Chairman
Risk Management Committee

PRESSURIZED WATER REACTOR OWNERS GROUP

Risk Informed Framework

Regulatory Guide 1.174 identifies the elements of integrated decision making



Does the change meet current regulations unless it is related to an exemption?

Is the change consistent with Defense in Depth?

Does the change maintain sufficient margins?

What Surveillances are being implemented to monitor the change?

Is the proposed increase in CDF and risk small?

Integrated Decision Making

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Integrated Decision Making



Risk Insights

Defense in Depth

Decision Making

Elements of Risk Informed Decision Making have to be addressed as well as integrated together

Risk can be used to systematically evaluate defense-in-depth

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Risk Informed Perspective



Risk Insights should be used to put defense in depth into a perspective within reality

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Risk Integrated Defense in Depth

Defense in Depth	Risk Insights
Redundancy	Number of Failures Required
Diversity	Common Cause Failures, Importance measures
Barriers	Accident Sequences, CDF, LERF
Safety Margin	Success Criteria and Uncertainty

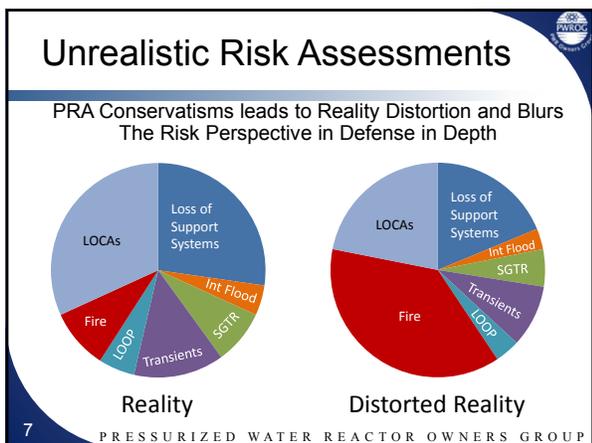
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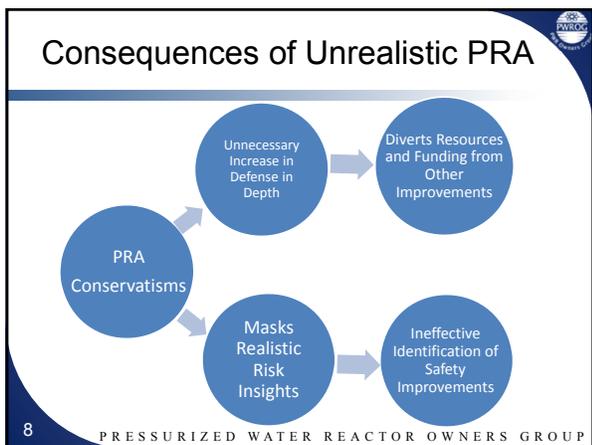
Uncertainty

Adding PRA Conservatism does not improve Uncertainty



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A Needed Paradigm Shift

Licensee	Regulator
Integrate Risk and Defense in Depth Evaluations in Submittals	Integrate the defense in depth review of submittals with the review of risk assessments

Collaborate on Guidance of Risk Informing Defense in Depth

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PRA Experts Need to Better Promote Risk Management

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Speak the Same Language

Reduce PRA Jargon and learn to explain Insights to non-PRA people

10E-... event CCDP Fault Trees
Release Class Frequency Fussell-Vesely
Birnbaum Basic Events Risk Achievement Worth
Cutsets LERF Split Fractions
Event Trees ICLERP

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Promote Risk Management vs PRA

Risk Management PRA

Focused on Insights A powerful tool that is focused on numerical values

Translates to Improvement

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Risk Informed Defense in Depth

Promote Risk Integration with Defense in Depth

Both should be used together seamlessly

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The diagram consists of two overlapping circles. The left circle is light blue and labeled 'Risk Insights'. The right circle is red and labeled 'Defense In Depth'. The overlapping area in the center is a darker purple color and labeled 'Integrated Decision Making'. The text 'Both should be used together seamlessly' is positioned below the circles. The slide number '13' and the group name 'PRESSURIZED WATER REACTOR OWNERS GROUP' are in the bottom left corner. A small logo is in the top right corner.

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The slide features a dark blue background. On the left is the PWROG logo, which includes a stylized atom symbol above the text 'PWROG' and 'PWR Owners Group' in a circular arrangement. To the right of the logo, the text 'Global Expertise • One Voice' and the website 'www.pwrog.com' are displayed in white.
