

A large, central version of the PWROG logo is displayed. The acronym "PWROG" is in a large, bold, black font, with the "O" in blue. Below it, the words "PWR Owners Group" are written in a smaller, black font. The entire logo is overlaid on a large, light gray atomic symbol graphic that spans across the middle of the slide.

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PWROG-22010-NP, “Risk Assessment Process for the Review of Topical Reports (RAPTR)”

PWROG-NRC Meeting - June 6th, 2023



Agenda

- Introductions
- Objective of the Meeting
- RAPTR Process
- RAPTR Applicability
- Examples of generic issues where RAPTR may be used
- Open Discussion



Introductions



Objective of the Meeting

- To provide a technical overview of PWROG-22010-NP which proposes the RAPTR process
- Address NRC feedback and obtain NRC feedback on PWROG-22010-NP
 1. **Expected review duration based on the complexity of the risk approach**
 2. **Technical adequacy of supporting risk assessment**
 3. **Screening process**
 4. **Examples of generic issues where RAPTR may be used**



RAPTR Objective

- Propose a process that that builds upon the RIPE process to address generic industry issues commensurate with the risk significance of the issue (formerly presented as RIPE-G)
- The NRC can consider using RAPTR to support a supplemental TSG (like the RIPE TSG that supplemented LIC-101 and LIC-103) to supplement LIC-500 to allow the use of a risk significance prioritization process

Why Does Industry Need a Generic Process?

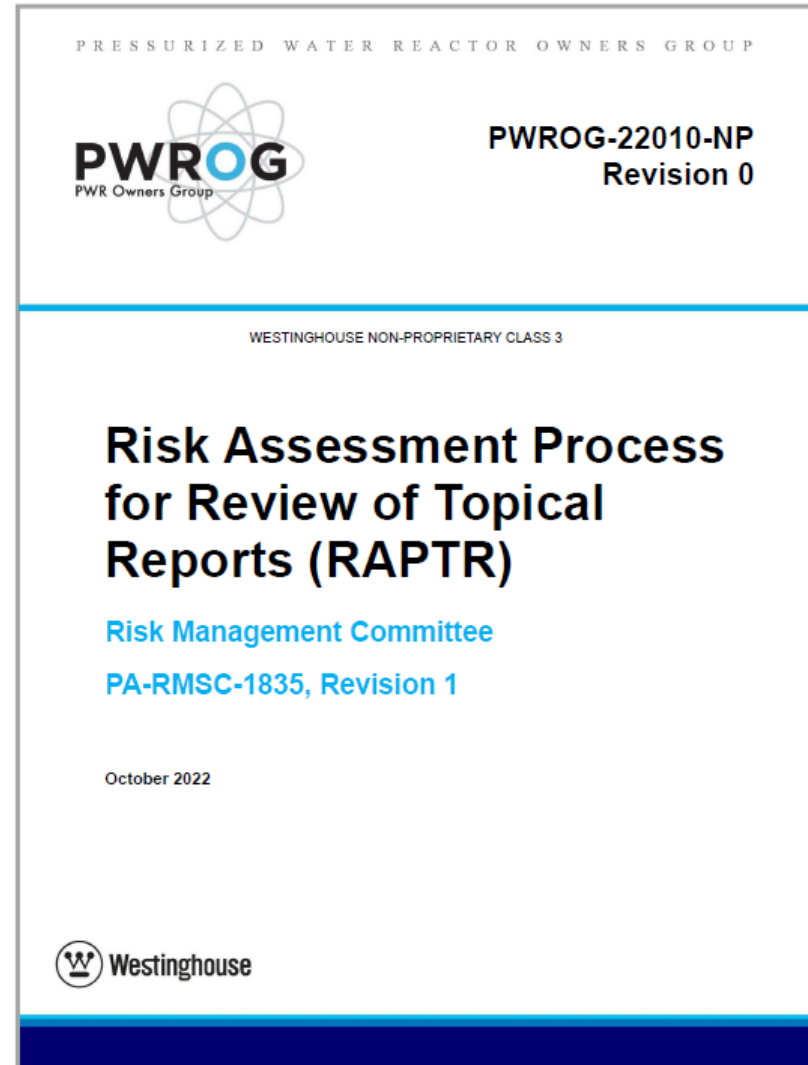
- **Generic issues of low risk significance can be addressed by a streamlined review process**
 - This process does not currently exist
- **Aligns with the NRC transformation initiatives**
- **Issues affecting multiple plants would be more effectively addressed with a single review/submittal.**
 - Promote consistency in the specific process to address an issue generically (leverage larger pool of technical expertise).
 - Plant specific implementation is required
- **Consistent technical basis for generic issues.**
 - Broader perspective from the Generic Assessment Evaluation Team (broader depth and breath of review from industry experts than from a plant-specific IDP)



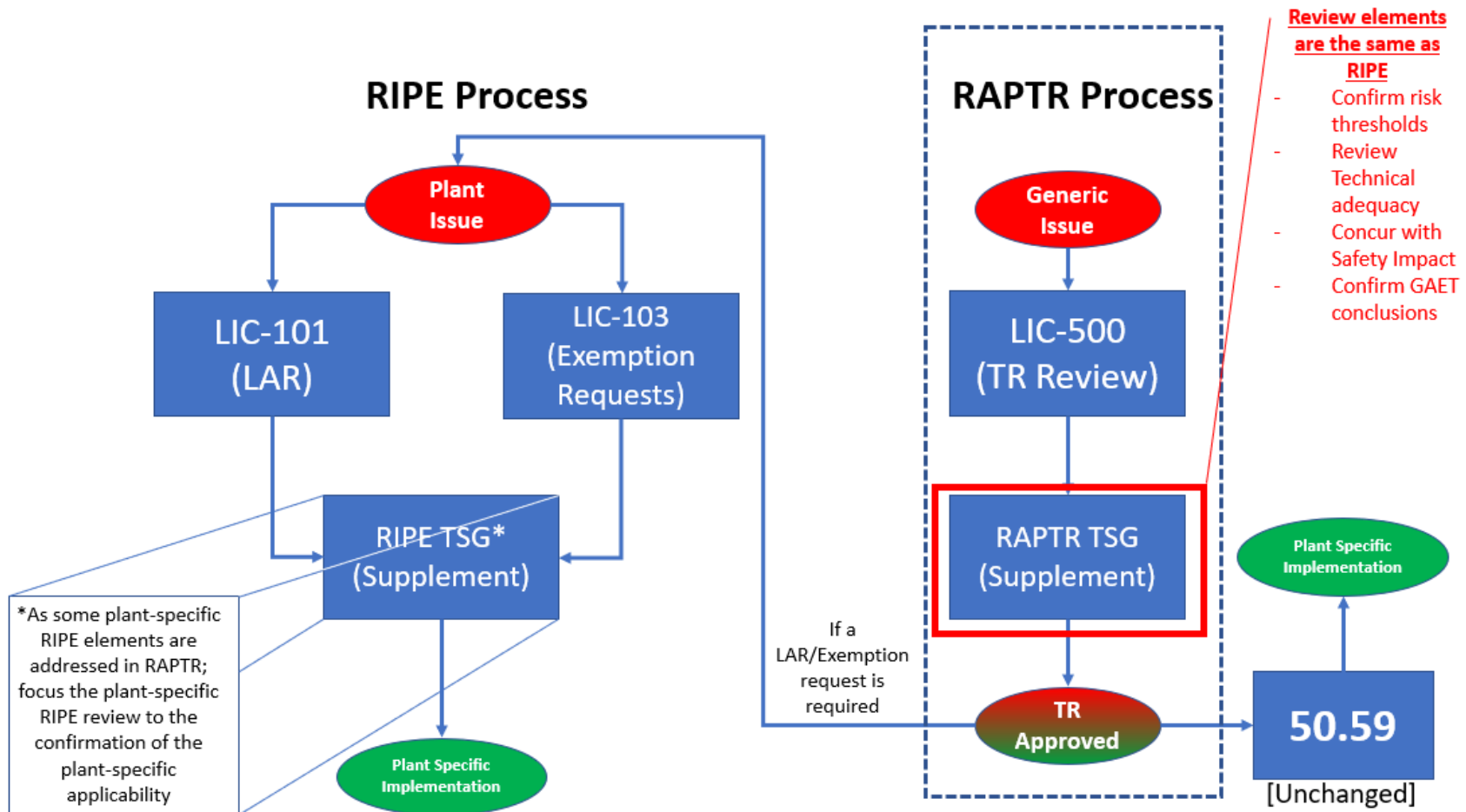
PWROG-22010-NP

1. Introduction
 2. Background and Objectives
 3. RAPTR Process
 - 1) **Applicability**
 - 2) **Risk Metrics**
 - 3) **Technical Adequacy of a generic risk assessment**
 - 4) **GAET details**
 - 5) **Documentation**
 4. Phase 1 – Generic Review Process
 5. Phase 2 – Individual Plant Implementation
- APPENDIX – SUPPORTING INFORMATION AND IMPLEMENTATION GUIDANCE that does not need to be in contained in a TSG

The PWROG RAPTR process documents will be Non-Proprietary.



The Proposed RAPTR Process





The RAPTR Process – Risk Metrics

- For issues that do not directly result in core damage, a surrogate/different metric could be used: e.g., the frequency of entering into conditions under investigation
- CDF and LERF changes will be used as the risk metrics for issues that result in core damage
 - **The same numerical thresholds for the acceptance criteria as RIPE:**
 - 1E-7 Δ CDF
 - 1E-8 Δ LERF
- No consideration on cumulative risk
 - **RAPTR is expected to be used for minimal safety impact issues, implying that the added risk to a plant-specific risk profile would not be meaningful when compared with a total risk threshold of 1E-4CDF/1E-5LERF. RAPTR therefore does not address the issue of total plant risk that is included in the plant-specific RIPE**

The RAPTR Process – Technical Adequacy

- The RAPTR process is based on a generic risk assessment (i.e., not a plant specific PRA)
- Three levels of complexity are envisioned:
 - **Simple generic risk assessment**
 - Only generic data, minimal assessment, conservative/bounding approach → The GAET is able to evaluate the technical adequacy
 - **Simple generic risk assessment based on plant-specific PRAs (pilot/representative)**
 - Utilize example plant PRAs (or elements thereof) → Enhanced GAET team (at least 2 risk specialists) to address the technical adequacy
 - **Detailed generic risk assessment**
 - New methods, PRA methods in new context → Dedicated peer review/NDM review of the method before the GAET review (it is expected that all findings closed before the GAET review) → Two levels of technical adequacy review (i.e., the peer review team and the GAET)

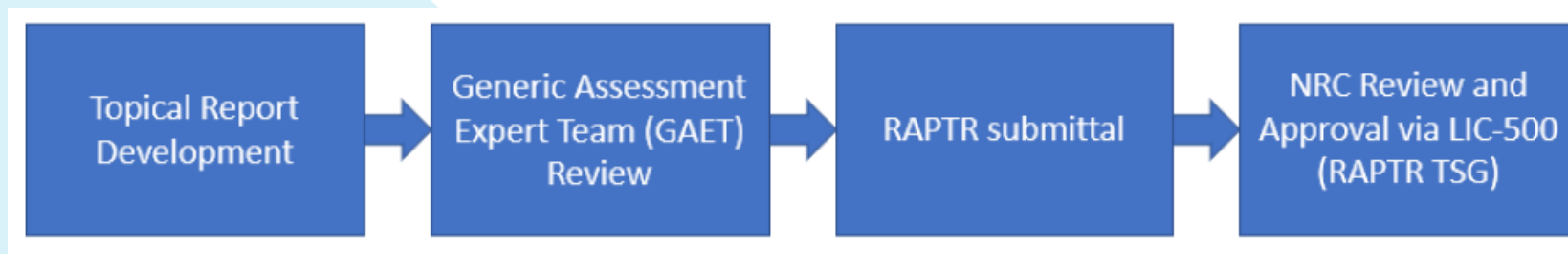


The RAPTR Process – Risk Assessment Technical Adequacy

- All observations/recommendations or findings on the risk assessment technical adequacy are addressed and resolved before proceeding with recommending implementation. The GAET review report would be attached to a RAPTR Topical Report.

The RAPTR Process – Documentation

- A RAPTR Topical Report will contain key documented elements
 - **Issue Definition**
 - **Safety Impact** → Address the questions used in the RIPE process
 - **Quantitative Risk Assessment**
 - Confirm RAPTR thresholds are met
 - Technical Adequacy review
 - **RG 1.174 elements**
 - **Applicability, limitations and conditions**
 - **GAET Review and recommendations (with disposition)**



The RAPTR Process – Expedited Review

LIC 500 with RAPTR TSG review categories [Proposed]

- Standard (2+ years) – Unchanged (go to LIC-500)
- Compressed (1 year) – Unchanged (go to LIC-500)
- Uncomplicated (6 months to 1 year) – Unchanged (go to LIC-500)
- **Non risk significant (6 months target)**
- SE confirmation – Unchanged (go to LIC-500)



Applicability and Examples

- NRC feedback
 - **For which types of issues do you anticipate using RAPTR?**
 - **Any specific examples where RAPTR would be considered?**
- Generic issues that qualify for the plant specific RIPE process
 - **The plant specific RIPE implementation would be limited to only confirming the applicability of the generic Topical Report as it would leverage the generic review and limit the individual plant review effort.**
- Issues that do not directly related to CDF/LERF
 - **Scenarios that would be Success scenarios in a PRA and would not be realistically represented via a CDF/LERF metric (e.g., the Asymmetric Natural Circulation issue)**
 - **Risk can still be expressed in its fundamental triplets but with a different consequence that can be defined ad-hoc based on the issue (e.g., the frequency of increased radiological dose).**



Applicability and Potential Example Pilots

Example	Description
TMRE	A generic RAPTR approval would have supported a set of plant specific exemption requests more efficiently.
Asymmetric Cooldown (original pilot)	Develop a TR that defines a new generic timing for ANC dose calculation. The backstop timing may be generic (i.e., not necessarily plant specific) based on expectation of very low risk change after a certain time. Not a CDF/LERF scenario, so risk would be defined by frequency of entering in ANC conditions and dose change (e.g., frequency/consequence curves similar to LMP).
Ultimate Heat Sink TS	TS 3.7.9 (NUREG-1431) Add an Action that allows the UHS limit to be exceeded for a finite period of time, (e.g., 7 days). One or more plant specific assessments can be done to justify a low risk impact determination and define the applicability and limitations for each plant to prepare a plant-specific RIPE submittal.



Applicability and Potential Example Pilots

Example	Description
Containment Air Temperature TS	<p>TS 3.6.5 (NUREG-1431) Extend the 8 hour Completion Time to TBD. A topical report would be developed to show that changes in CDF/LERF would be zero based on the fact that components that are credited in containment for accident mitigation are qualified for accident conditions (impact on IEF to be considered).</p>
CREATCS TS	<p>TS 3.7.11 (NUREG-1431) Add an Action for 2 inoperable CREATCS trains with a Completion Time of TBD. CREATCS not explicitly modeled in the PRA however, a CDF/LERF assessment can be estimated based on the IEF increase for an IE based on equipment qualification considerations. Assess the impact on operator performance.</p>
CREFS	<p>Extend the 7 day Completion Time for an inoperable CREFS train to TBD. TS 3.7.10 (CREFS) can also be assessed, a risk assessment can be performed using two elements (CDF/LERF based on the impact on MCR operator actions) and the delta dose increase.</p>

Open Discussion