

PRA Configuration Control (PCC) Significance Determination Process (SDP) Meeting

April 18, 2024

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Division of Risk Assessment
PRA Oversight Branch

Meeting Details and Purpose

- Observation Public Meeting
- Provides public attendees the opportunity to observe the NRC discussing regulatory issues
- Continue discussion of NRC's oversight enhancement of PRA Configuration Control (PCC) processes and implementation
- Meeting focus: 2nd Meeting on the Significance Determination Process (SDP) proposal

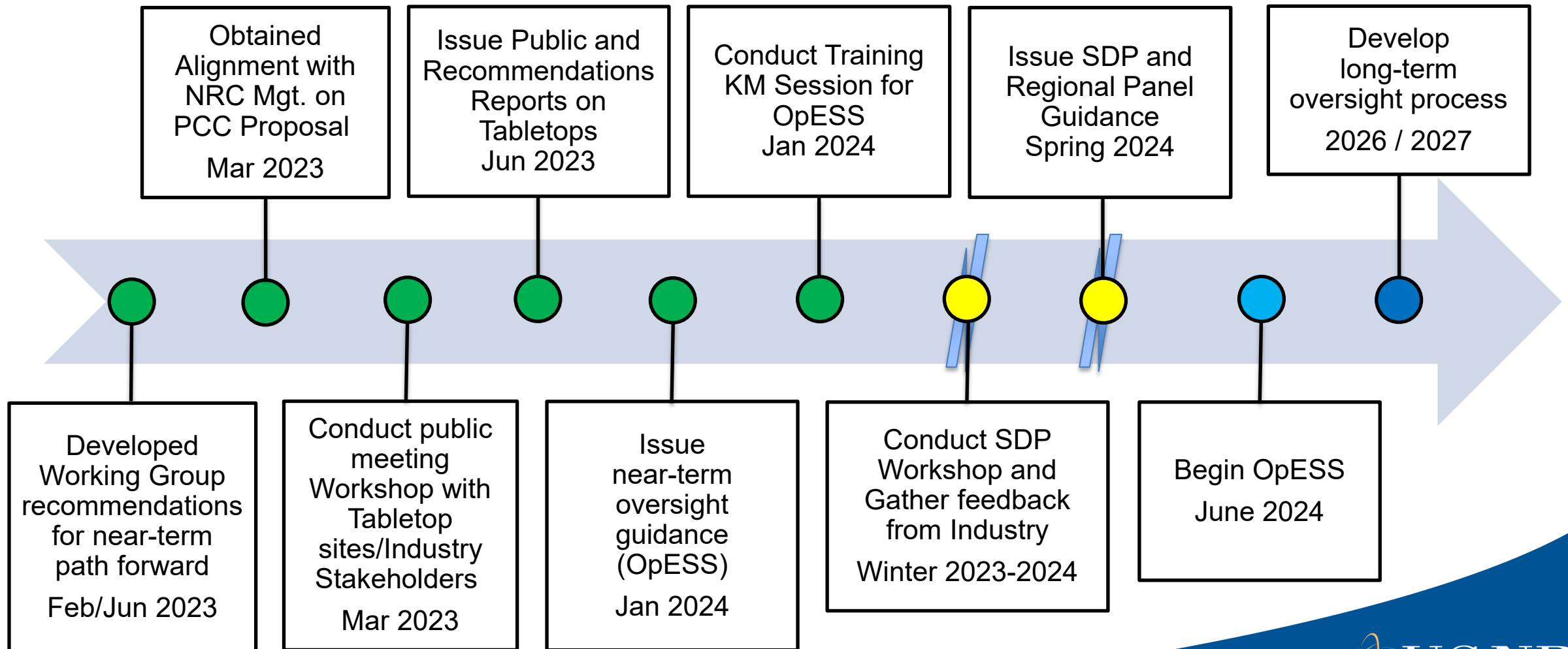
Meeting Agenda

- Introductions / Opening Comments
- NRC Presentation – Background on NRC's OpESS and Inspections
- NRC Presentation – Background on NRC's SDP Process
- NRC Presentation – Follow-up discussion on SDP Examples
- General Q&A / Discussion
- NEI/Industry Presentation(s)
- Q&A / Discussion
- Breaks, as necessary
- Public Comments / Questions
- Closing Comments

Introductions / Opening Remarks

- 1) NRC
- 2) Industry
- 3) Members of Public

PCC Project Milestones



Key Messages

- Multiple Regulatory requirements for PCC.
- If the PRA is not maintained, reflective of the as-built, as-operated plant, then risk estimates and risk decisions could be impacted.
- Current inspections have touchpoints to review certain aspects of the PRA, and the OpESS provides additional inspection guidance.
- Cross-regional review panels will ensure consistent application across the Regional Offices for any issues identified and SDPs.
- Current proposed oversight of PCC does not create any new policies or new enforcement precedents.

OpESS Background

- [OpESS](#) is an inspector tool to aid inspection preparation.
- Information and trends identified from OpESS may inform future agency action, (if warranted).
- OpESS recommendation was developed from voluntary Tabletops initiative, which was a joint effort between NRC and Industry.
- The OpESS was issued ([ML23255A006](#)).
- Applicable to Inspection Procedures (IP):
 - [71111.21M, Comprehensive Engineering Team Inspection, \(CETI\)](#)
 - [71111.21N.05, Fire Protection Team Inspection \(FTPI\)](#)
 - [37060, 10 CFR 50.69 Risk–Informed Categorization and Treatment SSC](#)
 - [71111.06, Flood Protection Measures](#)
 - [71111.13, Maintenance Risk Assessments and Emergent Work Control](#)
 - [71111.18, Plant Modifications](#)
 - [71111.24, Testing and Maintenance of Equipment Important to Risk](#)
 - [71151, Performance Indicator Verification](#)
 - [71152, Problem Identification and Resolution \(PI&R\)](#)

Inspection Implementation / OpESS Applied

- 1) Focused on PRA Configuration Control and not Acceptability, (does the PRA model accurately reflect the as-built, as-operated plant).
- 2) Licensee utilizing Risk Informed Programs (RIP).
- 3) The more RIPs in use, the greater the OpESS applicability.
- 4) Need sufficient runtime since implementation of RIPs (reasonable time for plant changes).
- 5) Sample selection based on impactful plant changes, (both in-progress and completed).
- 6) SRA oversight and coordination on sample selection.
- 7) Verify processes are in place to ensure the PRA is maintained.
- 8) Balanced, performance-based approach.

SDP Key Points

- ***Be riskSMART***

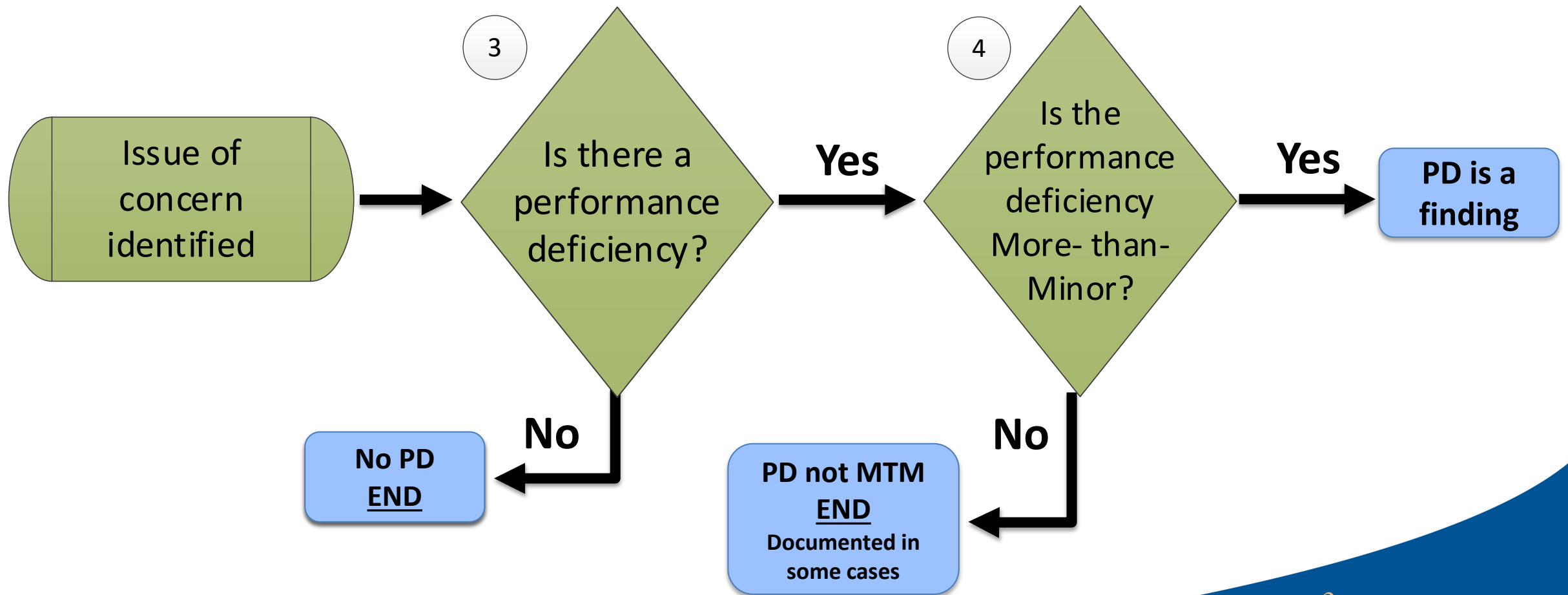
- Maintain regulatory predictability.
- Utilize existing processes.
- Reliable consistent SDP outcomes.
- Guidance for cross-regional panels is currently in DRAFT, ([ML24103A179](#)).

NOTE: At present, feedback from the March 18, 2024, Public Meeting has not been implemented in this draft.

SDP Background

[IMC 0612, App. B, Issue Screening](#)

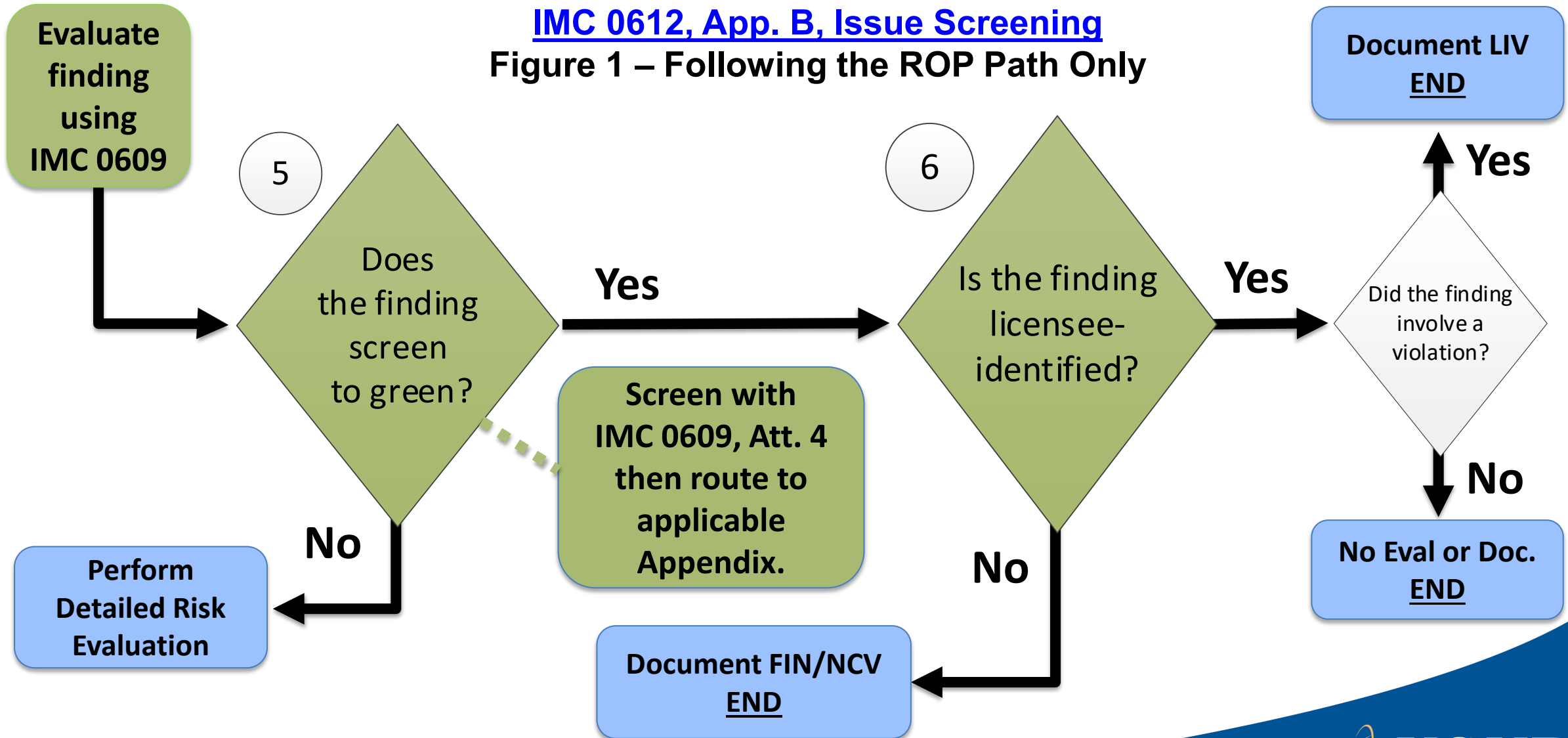
Figure 1 – Following the ROP Path Only



SDP Background

[IMC 0612, App. B, Issue Screening](#)


Figure 1 – Following the ROP Path Only



SDP Background - PCC Applicability

[IMC 0612, App. B, Issue Screening](#)

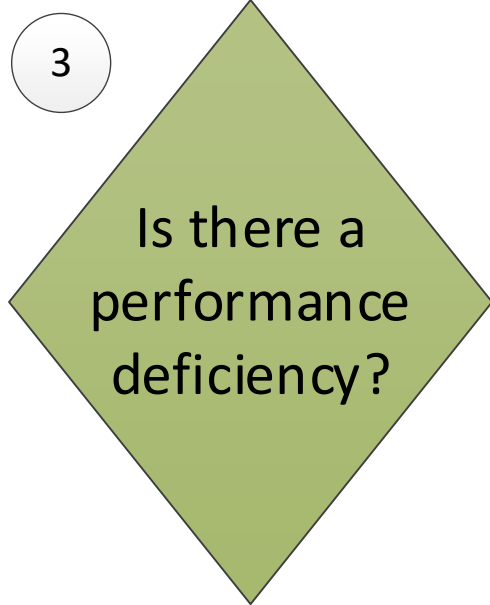
- Definition: Observation potentially impacting safety which may warrant further inspection, screening, evaluation, or regulatory action.
- PCC Application:
 - Program weaknesses,
 - Program Maintenance,
 - Program management of changes.
- Inspectors prioritize issues with greater significance.
- Issues may end here, however, Inspectors need to understand context.



Issue of
concern
identified

SDP Background - PCC Applicability

IMC 0612, App. B, Issue Screening



Performance Deficiency (PD)

- Definition: Failure to satisfy one or more regulatory requirements or self-imposed standards where such failure was reasonably foreseeable and preventable.
- PCC Application:
 - Failure to meet regulatory requirement, (PRA Standard, LA, Commitments), [Non-Cited Violation]
 - Failure to meet self-imposed standard, (Licensee Program procedures), [Finding]
- In PCC context specific to management of changes.
- If no PD END.

SDP Background - PCC Applicability

[IMC 0612, App. B, Issue Screening](#)

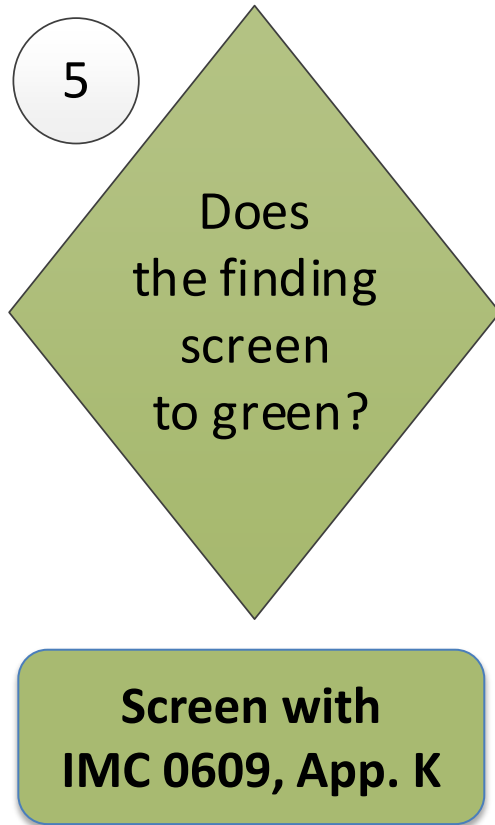
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Is the
performance
deficiency
More- than-
Minor?

- Could PD reasonably be viewed as a precursor to a significant event?
- If left uncorrected, would the PD have the potential to lead to a more significant safety concern?
- Did the PD adversely affect a cornerstone objective? (availability and reliability).
- Refer to [IMC 0612, App. E](#), “Examples of Minor Issues.”
- **If yes, then PD is considered a Finding and at a minimum Green, regardless of “actual” risk.**
- PCC Application:
 - Cross Regional Review Panel Screening Guidance, DRAFT ([ML24103A179](#)),
 - PCC specific examples (in development),
 - Significant and impactful,
 - Incorrect or Nonconservative assessment,
 - Reasonable doubt.
- If Minor, enter issue into CAP, END.
- May be documented in certain circumstances, (PI&R)

SDP Background - PCC Applicability

IMC 0609, Att. 04, Initial Characterization of Findings



- Initial Characterization:
 - Table 1, Factual Information
 - Table 2, determine affected cornerstone
 - Table 3, SDP Appendix Router
- PCC Application:
 - Finding would *typically* be related to PCC program
 - Cornerstone objectives: design control, configuration control or equipment performance
 - Cross Regional Review Panel Screening Guidance, DRAFT (ML24103A179) ensures all PCC issues routed to IMC 0609, App. K.

SDP Background - PCC Applicability

IMC 0609, App. K Maintenance Risk Assessment and Risk Management SDP

IMC 0609, App. K, (Utilized for General Guidance):

- Attachment 1 of App. K
 - Incremental Core Damage Probability Deficit (ICDPD) utilized,
 - $ICDPD = ICDP_{Actual} - ICDP_{Flawed}$.
- PCC Application:
 - Cross Regional Review Panel Screening Guidance, DRAFT ([ML24103A179](#)), [IMC 0609, App. K](#),
 - Limited exposure to 1-year or last model change (whichever is less),
 - Screened using best available information:
 - Licensee PRA-based evaluation (Step 4.1.1), or
 - SRA bounding analysis (Step 4.1.2)
 - If Greater than $1E-6$ → perform Detailed Risk Evaluation (DRE) > SERP.
 - General Guidelines of Flowchart 1 and Step 4.2.
- If final determination Green:
 - If Finding/NCV, enter into CAP document in Inspection Report, END
 - If LIV, enter into CAP, minimal documentation in Inspection Report, END

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Does
the finding
screen
to green?

Screen with
IMC 0609, App. K

SDP Background

- **Cross Regional Review Panel:**
 - Standing NRC practice to address specific issues
 - Promote consistent application and resolution of inspection findings
 - All proposed PCC findings or violations will be brought to the cross regional panel in order to reach consensus
 - Panels are temporary until sufficient familiarity with PCC issues
 - Staffed by representatives from HQ and the regions
 - Panels document the results for future ROP recommendations and for knowledge training

SDP Background

- **Internal reviews / controls prior to any Final SDPs:**
 - Team Lead/SRA
 - Regional Branch/Management
 - Licensee Feedback
 - Cross Regional Review Panel
 - HQ Oversight
 - Industry Feedback
 - *Performance Based Reviews (following sufficient runtime & data)*

SDP Background

- **Timelines:**

- Report Timeliness: Issued no later than 45 calendar days after inspection completion.
- For potentially Greater than Green inspection findings, the goal for SDP timeliness is to complete all final SDPs within 255 days from identification date.

- **Other SDP Items:**

- Documenting Multiple Examples of a Violation:
 - Cross Regional Review Panel Guidance will follow existing enforcement guidance on implementation of the Enforcement Program and the ROP as detailed within the NRC Enforcement Manual ([ML23360A760](#)).
 - Specific guidance on this topic is contained in Part 1, Sections 1.3.4 and 1.3.5.

Questions



Industry Presentation

Victoria Anderson

Nuclear Energy Institute

Key Principles

- Inspections should examine what has happened, not what could have happened
- Must be assessed against actual impacts on licensing applications
 - Scope of licensing applications: NFPA 805, 50.69, TSTF-425, TSTF-505
- Concept of one finding per performance deficiency should be clearly documented in inspection guidance
 - Can have a cross-cutting impacts

No Violation

- Change to plant wasn't evaluated for inclusion in PRA but there was no impact in the model.
- Inadequate documentation, but decisions made in or by the model were correct.
- Identified change not modeled, but not modeling is consistent with utility's PRA configuration control program (refers to timeliness of changes)
 - Includes released data updates

Minor Violation

- Non conservative impact on PRA model

AND

- PRA model was used in a licensing application (e.g. uses an approved LAR such as RICT or 50.69)

AND

- Decision was NOT impacted
 - E.g. Amount of actual time spent in RICT would not have changed
 - E.g. Would have changed SSC categorization from LSS to HSS but no alternate treatments have been applied

More than Minor Violation

- Non conservative impact on PRA model

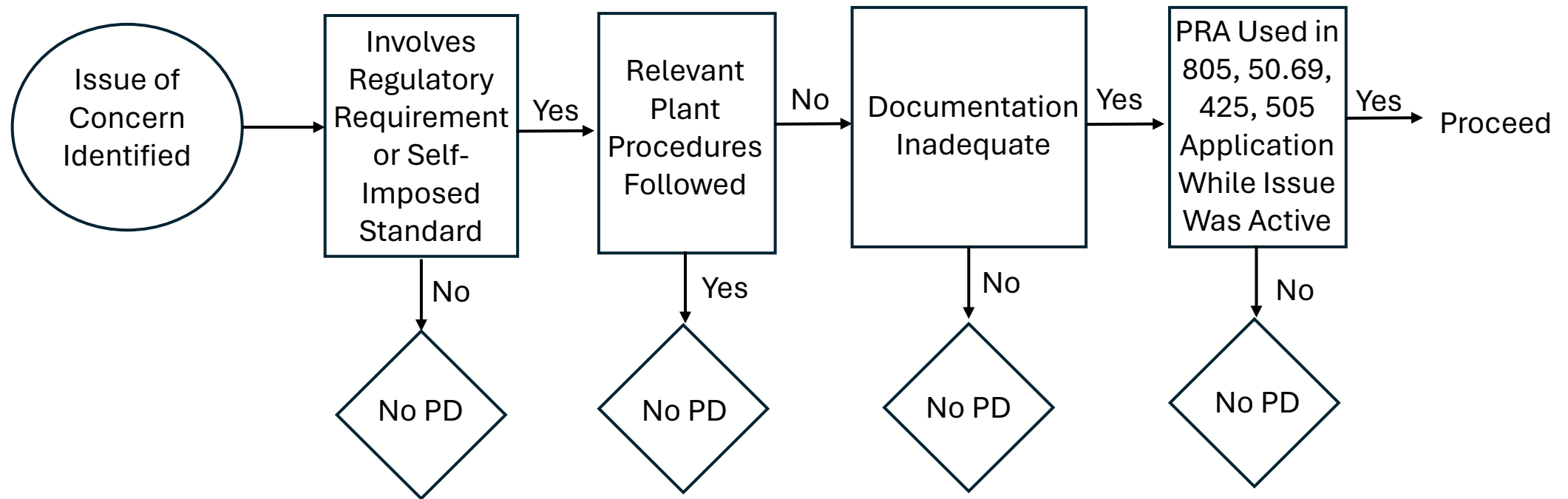
AND

- PRA model was used in a licensing application (e.g. uses an approved LAR such as RICT or 50.69)

AND

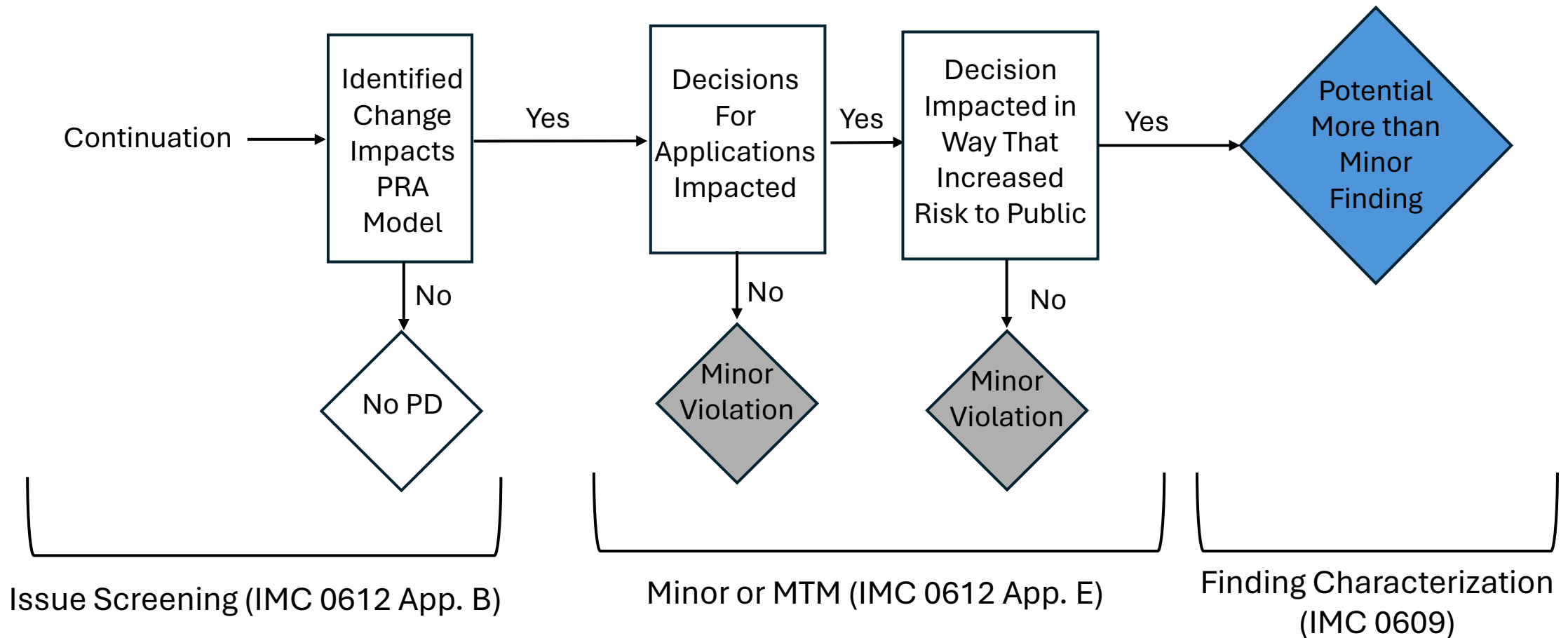
- Decision was impacted in a non conservative manner
 - Has to impact an actual decision that was made, not a possible decision
 - Non conservatism needs to involve an actual impact on the decision that increased the risk to the public (e.g. a RICT of 28 days was calculated, but should have only been 25 days and the condition was entered for 26 days)
 - Must involve a regulatory requirement or self-imposed standard

Illustration of Process



Issue Screening (IMC 0612 App. B)

Illustration of Process – Continued



Topics to be Resolved

- Definition of reasonable doubt
 - Suggested: Minimal amount of data to provide confidence in ability to maintain fidelity in results
- Public availability of cross-regional panel guidance and SRA peer guidance for information
- Definition of cornerstone impact
- Use of “in accordance with the PRA Standard” vs. “in accordance with licensee procedure”
- Data, process, and timelines for SDPs, including clear understanding of how metrics will be calculated

NRC PCC SDP Examples

Previously presented during March 18, 2024, Public Meeting.

- 1) Data not being updated within required time limits
- 2) Failure to review a plant change for impact on the PRA model
- 3) Documentation and/or Justification Issue
- 4) RICT Calculation Error
- 5) Modeling Control Error Example 1
- 6) Modeling Control Error Example 2

NRC Example 1:

Description: Data not being updated within required time limits.

Performance Deficiency (PD): Failed to perform data update within the period of every 2 refueling outages.

Screening: If left uncorrected, the PD could have the potential to lead to a more significant safety concern or, PD associated with the MS cornerstone of equipment performance and specifically could have affected the availability and reliability of the SSC.

0612 App. E (**Examples of Minor Issues**): Similar to 8.a, 1.c (program), 3.a (technical error in calculation), 3.h (non-conservative value used), 3.i (used non-conservative data vs. industry data)

Minor if: Recalculation did not adversely affect the cornerstone reliability and unavailability, specifically the condition did not change any risk-informed decisionmaking (RIDM), data (e.g. MSPI) or other risk-based evaluations,
or if the licensee had previously performed a reasonable evaluation justifying the extension.

More than minor (MTM) if: Reasonable doubt (RD) the PD could adversely affect reliability and unavailability prior to recalculation, and/or RD that recalculation **could have the potential** to adversely change any RIDM in an unfavorable manner or, could have resulted in a non-conservative RIDM outcome.

NRC Example 2:

Description: Licensee did not review a plant change for impact on the PRA model. Issue wasn't modeled (or failed to model/PRA group missed modeling a change to the plant).

PD: Licensee failed to perform a review of a change or modification to the plant.

a) Change was not required IAW the PRA Standard, b) Change was a required element IAW the PRA Standard.
c) Change required an update to online risk model, d) Change was significant and required immediate update or required PRA Upgrade.

Screening: If left uncorrected, PD could have the potential to lead to a more significant safety concern or, PD associated with the MS (or IE) cornerstone of equipment performance and could have affected the availability and reliability.

0612 App. E (**Exs. of Minor Issues**): Similar to 8.c, 8.d, 1.c, 3.a, 3.h, 3.i

Minor if: Review determined the change evaluation did not adversely affect the cornerstone or the reliability and unavailability, specifically the condition was not required IAW the PRA Standard. See (a) above.

MTM if: RD concerning an adverse impact to the cornerstone or the reliability and unavailability prior to evaluation, or there was RD that the missed change/modification could have the potential to change a risk evaluation in an unfavorable manner; or resulted in or could result in a non-conservative RIDM outcome; or if the change required an analysis IAW the PRA Standard or resulted in a change or required a future change to the PRA. See (b), (c), and (d).

NRC Example 3:

Description: The licensee failed to provide documentation to adequately demonstrate compliance with maintaining the PRA program. Specifically, the licensee lacked adequate records to support decisions, and/or evaluations of changes, descriptions, and PRA changes, including but not limited to PRA Upgrades and PRA Maintenance, and records of PRA reviews.

PD: Licensee failed to adequately document PRA changes.

Screening: If left uncorrected, PD could have the potential to lead to a more significant safety concern or, PD associated with the MS (or IE) cornerstone of equipment performance and could have affected the availability and reliability.

0612 App. E (**Exs. of Minor Issues**): Similar to 1.a, 1.c, 3.a, 3.h, 3.i

Minor if: PD did not adversely affect the cornerstone or reliability/unavailability, specifically there was reasonable assurance without significant re-evaluation to conclude change was insignificant to PRA and associated RIDM outcome.

MTM if: PD adversely affected the cornerstone or reliability/unavailability, or RD concerning the reliability/ unavailability prior to updated evaluation, specifically significant effort required to duplicate or reperform the evaluation.
Or documentation was associated with or supported a PRA Upgrade or was a factor in supporting a conclusion regarding a PRA Upgrade or PRA Maintenance or was documentation associated with supporting a Peer Review IAW the PRA Standard.

NRC Example 4:

Description: Error identified in a risk informed completion time (RICT) calculation.

PD: Licensee failed to accurately calculate a risk analysis for a RICT.

Screening: If left uncorrected, PD could have the potential to lead to a more significant safety concern or, PD associated with the MS (or IE) cornerstone of equipment performance and could have affected the availability/reliability.

0612 App. E (**Exs. of Minor Issues**): Similar to 1.a, 1.c, 3.a, 3.h

Minor if: PD did not adversely affect the cornerstone or reliability/unavailability, and did not adversely impact the licensee's RIDM, plans, RMAs or schedules. Error was conservative and did not require significant effort to evaluate/update.

MTM if: PD caused RD concerning the reliability/unavailability prior to re-evaluation, or there was RD that error or omission could have potential to change a risk evaluation in an unfavorable manner; or resulted or could result in non-conservative RIDM outcome; including significant decrease in the available RICT calculated backstop.
Or the error significantly affected the RMA time (RMAT) or resulted in the RMAT being passed without knowing.
Or the error in the RICT was non-conservative in nature and/or required significant effort to evaluate or update.

NRC Example 5:

Description: PRA did not accurately reflect the as operated Plant. Changed an operating philosophy so the operating equipment train was not necessarily the protected equipment train. Impacts of the operational change on the PRA model were not assessed and therefore the risk assessment tool (RAT) used by operators did not match actual plant conditions resulting in non-conservative risk assessment, impacting baseline CDF calculations and RICT values.

PD: Licensee failed to maintain PCC of the PRA model with the RAT IAW licensee procedures.

Screening: If left uncorrected, PD could have the potential to lead to a more significant safety concern or, PD associated with the MS (or IE) cornerstone of equipment performance and could have affected the availability/reliability.

0612 App. E (**Exs. of Minor Issues**): Similar to 1.c, 3.a, 3.h

Minor if: PD did not adversely affect cornerstone since contribution to reliability/unavailability was insignificant when compared to initial assessments, and resulting change did not impact the RIDM process and did not require significant changes to risk assessments or plans and higher risk categories were not entered because of any updates.

MTM if: PD caused RD of adverse impact to the cornerstone reliability/unavailability prior to the evaluation, and/or RD that error could potentially or did significantly change risk evaluation in an unfavorable manner; or resulted or could result in non-conservative RIDM outcome; or change required entry into a higher risk category, or caused additional compensatory actions than originally planned.

NRC Example 6:

Description: Licensee did not account for the fact that SSCs were required to be in a specific alignment/position for the given plant configuration being analyzed.

PD: Licensee failed to adequately capture and analyze SSCs and their interrelationships for an event. .

Screening: If left uncorrected, PD could have the potential to lead to a more significant safety concern or, PD is associated with the IE or MS cornerstone of equipment performance and could have affected availability/reliability of the SSC.

0612 App. E (**Exs. of Minor Issues**): Similar to 1.c, 3.a, 3.h

Minor if: PD did not adversely affect MS cornerstone since contribution to reliability/unavailability was insignificant, and resulting change did not impact RIDM process, and did not require significant changes to assessments or plans. No higher risk categories entered because of updates. Review determined error/condition was not required to be analyzed IAW the PRA Standard.

MTM if: PD caused RD concerning adverse impact to the cornerstone or reliability/unavailability prior to evaluation, and/or RD that error could have potential to change risk evaluation in an unfavorable manner; or resulted or could result in a non-conservative RIDM outcome; or if the error or omission should have been a required analysis/input IAW the PRA Standard or required in an unplanned revision or update to the PRA model.

Discussion and Q&A



PRA Configuration Control (PCC) SDP Meeting

**Public Questions
and Comments**

PRA Configuration Control (PCC) SDP Meeting

Closing Remarks

PRA Configuration Control (PCC) SDP Meeting

Meeting Concluded

Meeting Point of Contact:

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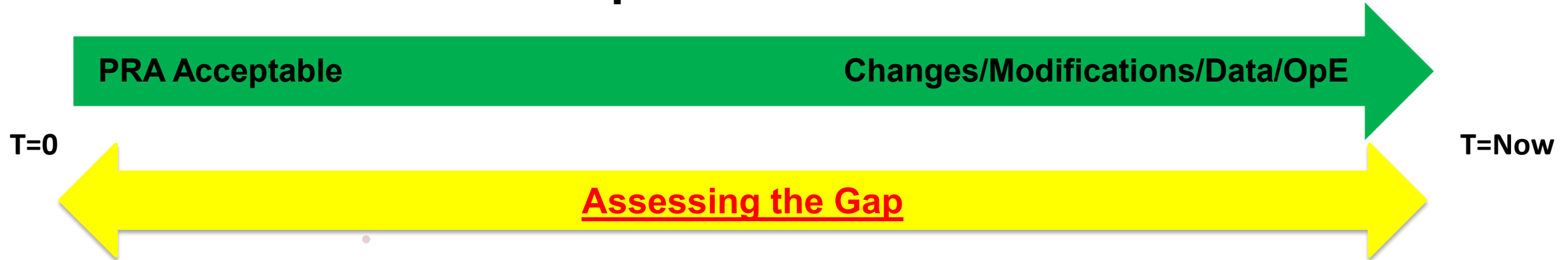
Backup Slides

PRA Configuration Control (PCC) SDP Meeting

Short Break
Resume at 2:00PM Eastern

PRA Configuration Control (PCC) Oversight Gap

PRA found acceptable ► Issuance of SE/LA



Plant Modifications

Operating Experience and Data

PRA Maintenance and Upgrades

No Current permanent
NRC Oversight
of PRA Changes

OpESS Details

OpESS Objectives:

1. Support inspection activities of PCC programs.
2. Gather information and trends of PCC programs to inform future inspection activities.
3. Verify licensee processes to reasonably ensure PCC activities.

Inspection Guidance:

1. Provide regulatory and operating experience backgrounds.
 2. Verify processes and procedures are in place to ensure the PRA program is being maintained to support risk-informed decisions.
 3. Verify processes and procedures were completed appropriately to ensure the PRA program was being sufficiently maintained to support past and current risk-informed decisions.
- **Intent would be to revise the OpESS for the subsequent three ROP Cycles based upon observed performance and refocus, as necessary.**