

STABILIZING THE PRA QUALITY EXPECTATIONS AND REQUIREMENTS

Presentation at public meeting

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PURPOSE OF MEETING

- To present the draft action plan for response to SRM COMNJD-03-0002 - Stabilizing The PRA Quality Expectations and Requirements
- To solicit stakeholder input

OUTLINE OF PRESENTATION

- Background and objectives
- Definition of phases
- Implementation
- Staff and industry activities
- Resolution of technical issues
- Potential policy issues
- Schedule

PRA QUALITY

- Some ambiguity about the meaning of the term “PRA Quality”
- Defined in RG 1.200
 - For a given application, PRA Quality is determined by the appropriateness of
 - Scope
 - Level of detail
 - Technical acceptability
 - The greater the emphasis on risk insights the more stringent the requirements for the PRA in terms of scope, level of detail and assessment of delta risk

PURPOSE OF THE SRM

- Commission's objectives:
 - Increase the use of risk insights through the use of high quality, more complete PRAs, thus enhancing safety
 - Provide a pathway for predictability by establishing clear expectations on PRA quality
 - Facilitate near-term progress and enhancement of safety through the use of available methods
 - Create efficiencies in the staff's review of risk-informed applications
 - Strive for increased effectiveness in the longer term

APPROACH IN THE SRM

- Adopts a phased approach to achieving an appropriate quality for licensee PRAs for NRC's risk-informed regulatory decision-making
- Allows continued practical use of risk insights while progressing towards more complete, and technically acceptable PRAs

SRM DIRECTION

- Directs the staff to develop an action plan to:
 - Define a practical strategy for implementation
 - Address the resolution of technical issues, such as:
 - Model uncertainty
 - Seismic and other external events
 - Human performance issues

STATUS

- Interoffice (NRR/RES) working group established
- Draft plan made available 3/15
- Soliciting input from stakeholders
- Final plan due to Commission 7/04

THE PHASED APPROACH

- The phases are differentiated by the availability of the guidance documents for using PRA in regulatory applications, and establishing that the PRAs are of sufficient quality. These include:
 - industry consensus standards
 - industry guidance documents
 - regulatory guides
- Staff guidance documents addressing performance of reviews are required for implementation.

PHASE 1

- Currently in Phase 1
- PRA quality judged only in the context of what is needed for the application - no requirement for the review of the base PRA
- All contributors to risk (operational modes and initiating event types) are addressed
- Contributors to risk not in the scope of the PRA model are addressed in a number of ways including qualitative arguments, bounding analysis, and restricting the scope of application

PHASE 2

- An application type (“issue-specific”) approach to PRA quality
- PRA quality demonstrated by comparison with an applicable consensus standard for those elements required by the application
- All contributors to risk (operational modes and initiating event types, internal, seismic, fire, etc.) are addressed
- All significant risk contributors applicable to the issue are included in the PRA scope
- Significance of a contributor is determined by whether taking it into consideration could change the decision substantially

PHASE 2 (Cont'd)

- To achieve Phase 2, guidance must exist for
 - Use of PRA in making the decision (e.g., regulatory guides), including definition of scope
 - Assessment of the quality of the PRA for each scope item used to support the application (e.g., Standards, RG 1.200)

PHASE 3

- Regulatory framework is in place that enables licensees to develop a base PRA to conform to all the existing Standards in sufficient depth to address all currently envisioned applications
- Phase 3 is scheduled to be completed by December 31, 2008
 - Consistent with schedule for Standards development
- A licensee enters Phase 3 when its base PRA conforms to all the existing Standards in sufficient depth to address all currently envisioned applications

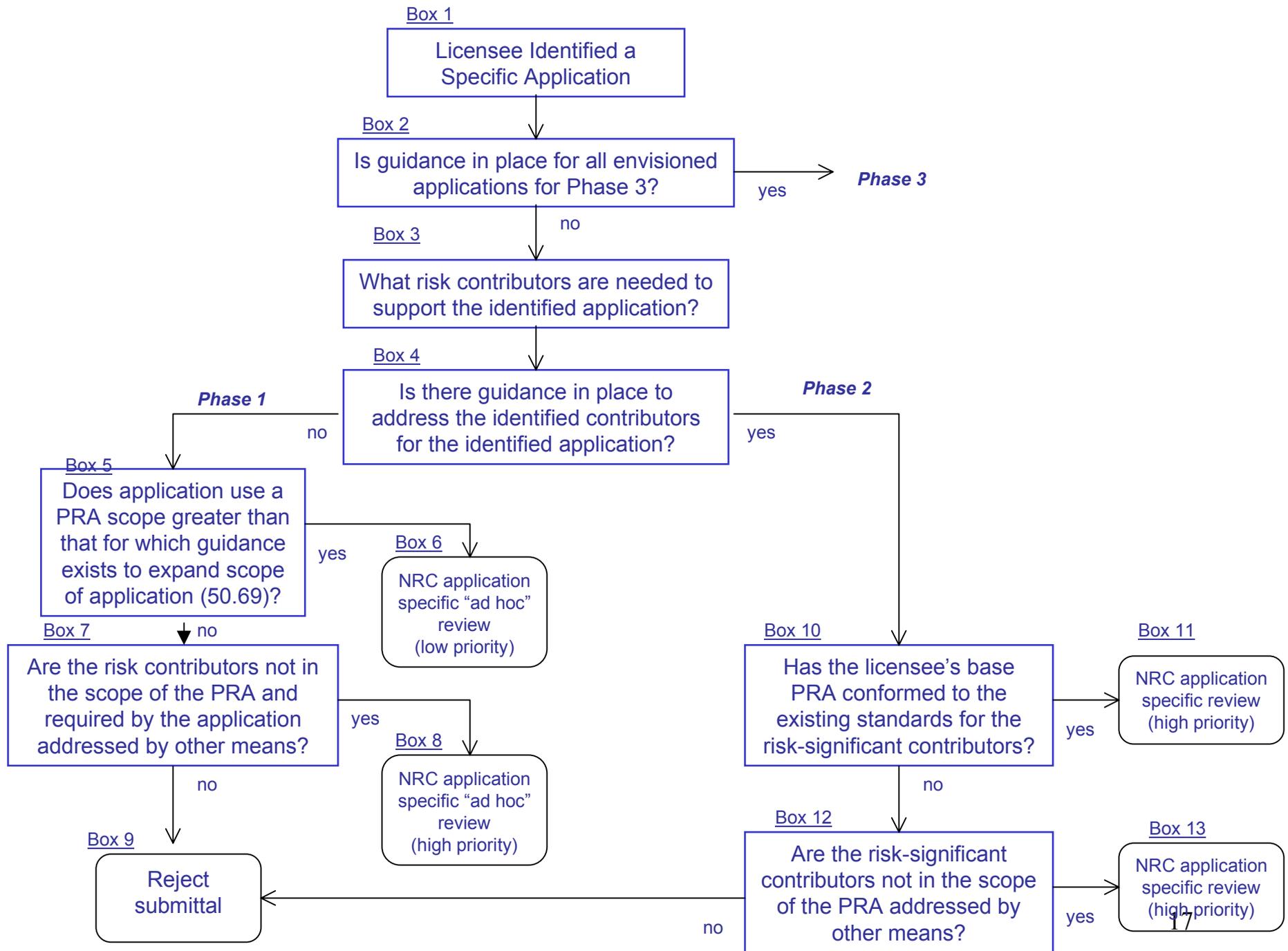
PHASE 4

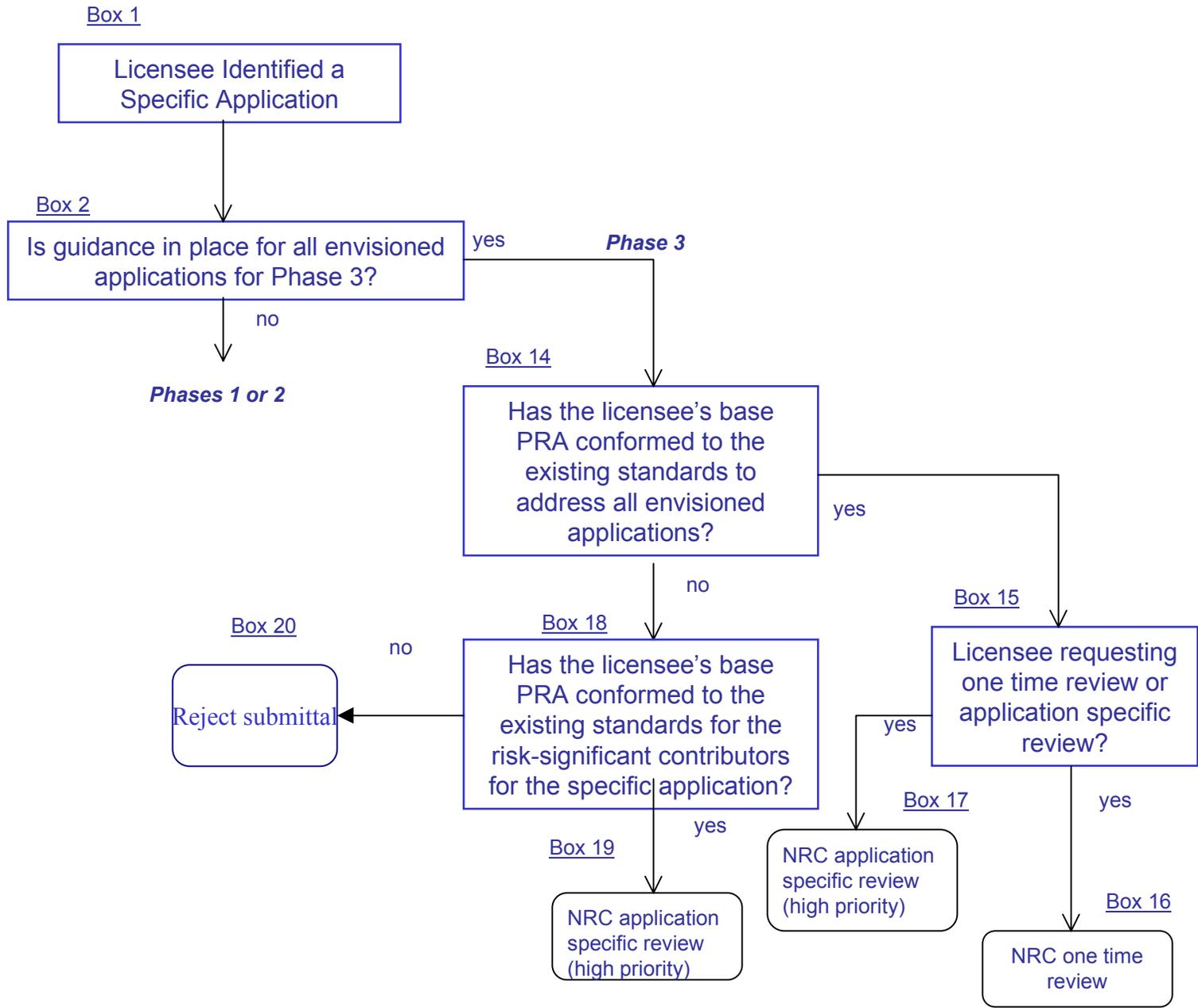
- Phase 4 will be reached when a PRA has been developed to the state-of-the-art (e.g., CC III)
- It is recognized that reaching this goal will be resource intensive both for licensees and NRC
- Phase 4 involves direct staff review and approval of licensee PRAs
- This plan does not address Phase 4

STAFF REVIEW OF PRA

- Phase 1: ad hoc review
- Phase 2: reliance on peer review in accordance with RG 1.200 with audit for each application
- Phase 3: as for Phase 2 but performed one time sufficient to address all applications
- Phase 4: staff review and approval of base PRA

IMPLEMENTATION





EXAMPLE

- What could this mean for the current vision of 50.69?
 - The NEI-00-04 categorization process allows for the use of non-PRA methods. SSCs relied on in non-PRA methods are not within scope of re-categorization
 - Currently RG 1.200 together with a Reg Guide endorsing NEI-00-04 would qualify it as a phase 2 application for those licensees using only a level 1 and limited level 2 (LERF) internal events PRA at full power
 - However, for a licensee using a fire PRA in addition to the above, this would remain as a phase 1 application until a standard for a fire PRA is completed and addressed in RG 1.200

OTHER ISSUES TO BE ADDRESSED IN THE PLAN

- Binning of applications into focus areas
 - Operational applications
 - Licensing basis changes
 - Rulemaking
- Resolution of technical issues and relationship to other staff initiatives, e.g., treatment of uncertainty in decision-making
- Informal program to monitor PRA quality
 - Application reviews
 - Periodic check against SPAR models

**STAFF AND INDUSTRY
ACTIVITIES NEEDED TO
IMPLEMENT THE PHASED
APPROACH**

ACTION PLAN TASKS

- Task 1: Identify types of applications within the following general categories
 - Operational uses (e.g., to support maintenance rule)
 - Oversight program (e.g., use of licensee PRA in phase 3 of SDP)
 - License amendments (e.g., 50.69, risk-informed ISI)
 - Implementation of new rules (e.g., 50.46)

ACTION PLAN TASKS (Cont'd)

- Task 2: Identify guidance documents needed for Phase 2 for each application type and specify:
 - How PRA results are used in decision-making
 - Scope and level of detail of PRA required
- Some guidance documents already exist, but may need to be modified to address quality expectations

ACTION PLAN TASKS (Cont'd)

- Task 3: Identify staff activities for developing the necessary guidance documents:
 - Supporting development of and endorsement of PRA standards
 - Updates to regulatory guides (including RG 1.200)
 - Development of regulatory guides for new applications (e.g., 50.69, 50.46)
 - Developing methods and supporting documents for technical issues (e.g., NUREGs)
 - Developing staff implementation guidelines (e.g., SRP, office instructions)

ACTION PLAN TASKS (Cont'd)

- Task 4: Define the schedule for transition to Phase 2 as a function of application type.
Dependent on:
 - Existence of endorsed standards for significant contributors
 - Ability of licensees to develop peer reviewed PRAs for significant contributors
 - Development of staff guidance document
- Schedule will allow time between endorsement of standards and full implementation

ACTION PLAN TASKS (Cont'd)

- Task 5: Develop the necessary guidance documents
- Resolve key implementation issues, such as:
 - Levels of review for licensee submittals
 - Definition of significance of a contributor as it relates to the regulatory decisions
 - What does it mean to issue a document “for trial use”

ACTION PLAN TASKS (Cont'd)

- Task 6: Develop phase 3 guidance
 - An “umbrella” document for all PRA quality requirements sufficient to support all current applications

ACTION PLAN TASKS (Cont'd)

- Task 7: Continued ad hoc monitoring of PRA quality
 - Use opportunities provided by risk-informed license application reviews, exercising SDP phase 3 reviews, benchmarking of SPAR models and SDP notebooks
- Will phase out as transition to Phase 3 occurs

INDUSTRY ACTIVITIES

- Develop consensus standards:
 - low power and shutdown PRA (2005)
 - Fire PRA (2005)
- Develop guides for applications (e.g., NEI-00-04)
- Provide update to NEI-00-02 (self-assessment process)

RESOLUTION OF TECHNICAL ISSUES

- Model uncertainty
 - Guidance document (e.g., NUREG) being developed that addresses the issue of treatment of uncertainties (e.g., model) in both the PRA and in decision making
- Seismic and other external events
 - ANS standard on external events under staff review (preliminary staff position for public review and comment this summer)
 - Above document (on uncertainties) also includes guidance for acceptable alternative methods (e.g., bounding, sensitivity analyses) to a PRA
- Human performance issues
 - NUREG on good HRA practices to supplement the PRA (HRA) standard

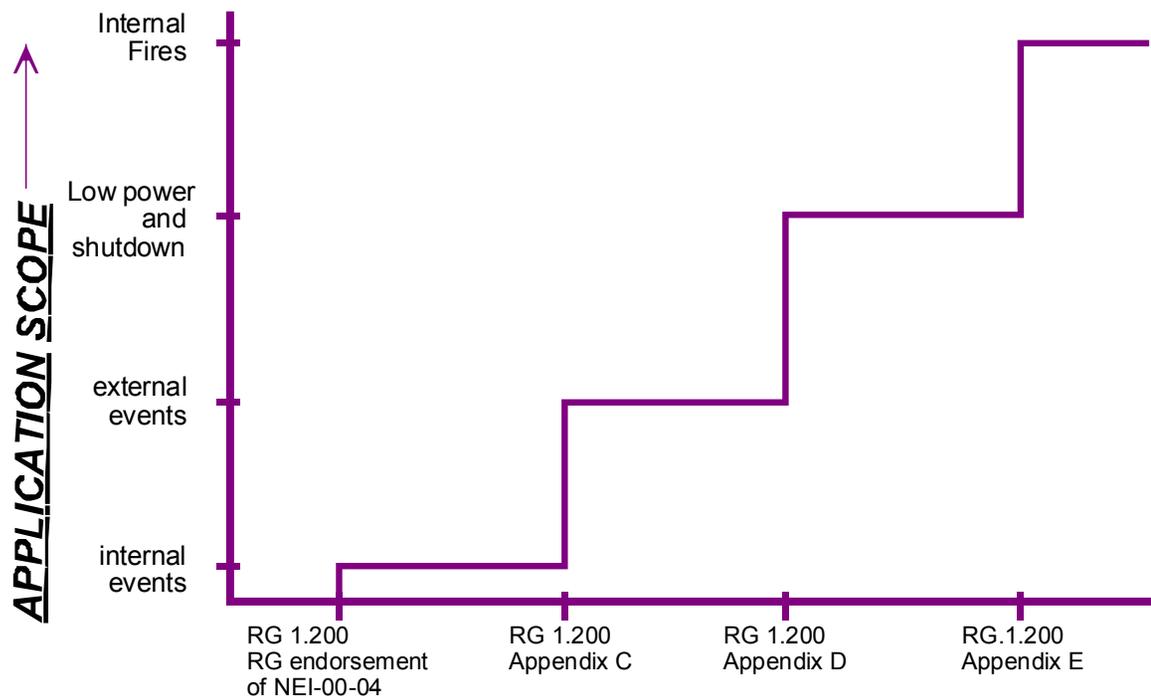
NEXT STEPS

- Finalize plan
- Incorporate stakeholder comments
- Send to Commission in July
 - anticipate policy issues related to implementation

POTENTIAL POLICY ISSUES

- Level of review for applications in which a PRA scope greater than that for which quality guidance exists is used to expand the scope of application, i.e., increase relaxation (e.g., 50.69)
- Whether licensees are expected to develop Phase 3 PRAs in order to participate in risk-informed regulatory activities

BACKUP SLIDE



TIMELINE AS FUNCTION OF SCOPE OF SSCs THAT CAN BE RECATEGORIZED